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OVERSIGHT OF OIL SPILL PROTECTIONS FOR THE GREAT LAKES

HEARING

BEFORE THE

SUBCOMMITTEE ON OVERSIGHT OF
GOVERNMENT MANAGEMENT

OF THE

COMMITTEE ON
GOVERNMENTAL AFFAIRS
UNITED STATES SENATE

ONE HUNDRED FIRST CONGRESS

FIRST SESSION

SEPTEMBER 6, 1989

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OVERSIGHT OF OIL SPILL PROTECTIONS FOR THE GREAT LAKES

WEDNESDAY, SEPTEMBER 6, 1989

U.S. Senate,
Subcommittee on Oversight
of Government Management,
Committee on Governmental Affairs,
Washington, DC.

The Subcommittee met, pursuant to notice, at 9:10 a.m., in room SD-342, Dirksen Senate Office Building, Hon. Carl Levin, Chairman of the Subcommittee, presiding.

Present: Senators Levin and Kohl.

Staff present: Linda J. Gustitus, Staff Director and Chief Counsel; Elise J. Bean, Counsel; and Frankie de Vergie, Chief Clerk.

OPENING STATEMENT OF SENATOR LEVIN

Senator Levin. Good morning, everybody.

All of us were deeply affected by the tragic oil spill in Valdez, Alaska. The pictures of blackened beaches and oiled wildlife graphically demonstrated how a single accident can despoil a beautiful area for years to come. The public response has tended to focus so far on how we can protect our saltwater coasts from such tragedies in the future. Many have overlooked the fact that the same danger threatens the Great Lakes.

The Great Lakes are far more vulnerable to spills than most people realize, and there are far more inadequacies in our spill response and prevention capabilities than we should or can tolerate.

In 1988, the U.S. and Canadian Coast Guards reported 492 spills of oil and toxic chemicals in the Great Lakes. That followed 384 spills in 1987 and 401 spills in 1986. Even worse, while the Canadian share of these spills was cut in half since 1986, the American share has almost doubled.

While most Great Lakes spills have been small in volume, the Great Lakes have had their share of large spills as well.

In 1984, a oil storage tank in New York discharged 1 million gallons of No. 4 fuel oil into the Great Lakes.

In 1980, an onshore pipeline in Michigan ruptured, spilling 215,000 gallons of gasoline into the lakes.

In 1984, a Michigan industrial plant discharged 200,000 gallons of toxic ammonia into the lakes.

In 1980, an Ohio storage tank spilled 147,000 gallons of crude oil into the lakes. And the list goes on.

About 85 percent of Great Lakes spills have been oil spills; the rest have involved toxic chemicals. About 75 percent of the spills have come from land-based facilities, such as oil storage tanks, industrial plants and onshore pipelines, while about 25 percent have resulted from shipping accidents.

Over the past several months, the Oversight Subcommittee staff has been investigating the Federal Government's role in our ability to prevent and respond to Great Lakes spills. The facts are that the Great Lakes are highly vulnerable to spills; they raise different spill concerns than the oceans; and clear deficiencies exist in current Great Lakes spill response and prevention capabilities. Based on the Subcommittee's research, it is also apparent that Federal agencies are not doing enough to correct these deficiencies and prevent the pollution caused by spills in the Great Lakes.

Most of us do not fully realize how vulnerable the Great Lakes are to spills. The Great Lakes are exposed on a daily basis to a large volume of petroleum products and toxic chemicals. In 1988, vessel shipments of these goods, which make up about 4 percent of total Great Lakes traffic, exceeded 81 million barrels. Approximately one-fifth of U.S. manufacturing and one-half of Canadian manufacturing are located along the Great Lakes coast, which means that the lakes are surrounded by storage facilities, industrial plants, marine transfer facilities, pipelines, and transportation networks carrying petroleum and toxic chemical cargos.

Second, the physical characteristics of the Great Lakes can magnify the harmful effects of even moderate spills. The Great Lakes are a closed system—a bathtub whose waters can take hundreds of years to leave the system. That means that spills cannot simply blow out to sea, wash away, or become dispersed by a larger body of water; they remain in the vicinity and are likely to reach shorelines where cleanup operations are toughest. The lakes' connecting channels also create problems. They are fast-flowing rivers with navigational hazards and lots of shipping traffic. Spills in these waters are difficult to stop and can spread spilled materials quickly from one lake to another. Finally, unlike spills in saltwater areas, Great Lakes spills risk freshwater contamination, with disruptions of drinking water supplies and industries dependent upon freshwater to operate.

The Great Lakes contain about 18 percent of the world's fresh surface water and about 95 percent of the U.S. fresh surface water. They now provide drinking water to about 23 million Americans and Canadians. To get a sense of the havoc that a freshwater spill can create, consider a January 1988 incident in which a 4-million gallon oil storage tank in western Pennsylvania, owned by Ashland Oil, collapsed and released about 1 million gallons of oil into the Monongahela and Ohio Rivers. That spill caused 15 drinking water intakes to be shut down; disrupted drinking water for about 2.7 million residents; closed businesses and schools; killed thousands of fish and birds; and contaminated hundreds of miles of shoreline. The Ashland oil spill never reached the Great Lakes, but the devastation it caused in neighboring waterways shows what could happen.

After reviewing the condition of the Great Lakes' spill response and prevention capabilities, it is clear to me that much needs to be done.

My written statement goes into detail about the problems and the actions that we need to take. We will make this statement part of the record. In summary, let me just say that we need to correct a host of deficiencies in our spill-fighting equipment and contingency plans. We need to strengthen a key EPA spill prevention program for oil storage facilities in which inspections have plummeted and promised reforms have not happened. We need to reverse the decline in the Coast Guard's environmental protection programs for the Great Lakes and review the Coast Guard's navigational requirements. We need to expand Federal spill research efforts and ensure that they include the Great Lakes' concerns.

I would like to see the Great Lakes be a model for this country and the world of how a precious and unique body of water can not only be preserved but improved, despite important commercial and manufacturing demands. The fact is that the Great Lakes are a national treasure. There is a lot that needs to be done to improve our spill response and prevention capabilities. And I hope that this hearing today can play a role in getting the Federal Government moving in this critical effort.

[The prepared statement of Senator Levin follows:]

PREPARED STATEMENT OF SENATOR LEVIN

All of us were deeply affected by the tragic oil spill in Valdez, Alaska. The pictures of blackened beaches and oiled wildlife graphically demonstrated how a single accident can despoil a beautiful area for years to come. The public response has tended to focus so far on how we can protect our saltwater coasts from such tragedies in the future. Many have overlooked the fact that the same danger threatens the Great Lakes.

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The Great Lakes contain about 18% of the world's fresh water supply, and about 95% of the United States' fresh surface waters. They now provide drinking water to about 23 million Americans and Canadians. To get a sense of the havoc that a freshwater spill can create, consider a January 1988 incident in which a 4-million gallon oil storage tank in western Pennsylvania, owned by Ashland Oil, collapsed and released about 1 million gallons of oil into the Monongahela and Ohio Rivers. That spill caused 15 drinking water intakes to be shut down; disrupted drinking water for about 2.7 million residents; closed businesses and schools; killed 10,000 fish and 2,000 birds; and contaminated hundreds of miles of shoreline. The Ashland oil spill never reached the Great Lakes, but the devastation it caused in neighboring waterways shows what could happen.

After reviewing the condition of the Great Lakes' spill response and prevention capabilities it is clear to me that much needs to be done. Our witnesses today will describe a host of deficiencies that must be addressed. A report from the State of Michigan, for example, describes spill-fighting equipment which is poorly maintained and poorly designed to handle Great Lakes wave conditions; equipment stockpiles which may not be strategically located; uncertain protections for drinking water intakes; and other gaps in our readiness to fight Great Lakes spills.

It is also clear that we need to design better equipment. Current spill-fighting equipment and techniques are ineffective under many conditions, and cleanup technology for some toxic chemical spills is virtually non-existent. Despite these problems, federal and industry spill research programs have diminished dramatically over the last decade, falling from about a $7 million effort in 1970 to a $700,000 effort in 1988. That's a drop of 90%. EPA terminated its spill research program altogether in 1987 and, in 1989, just three weeks before the Valdez disaster, mothballed a unique spill response testing facility. At the same time, researchers are telling us that, if reasonable investments were made, significant improvements in oil spill-fighting operations could be realized in the near term.

Plans are being laid to expand industry and federal spill research programs for the next several years. We need to make sure that these plans will address matters of concern to the Great Lakes, such as improved drinking water protections, spill controls for fast-moving rivers like the connecting channels, and cleanup technologies for toxic chemical spills.

Finally, we need to ask some hard questions about spill prevention programs, and we want to discuss today three areas of special concern to the Great Lakes: (1) a spill inspection program operated by EPA for bulk oil storage facilities near US waters; (2) the Coast Guard's Great Lakes pollution control efforts; and (3) the Coast Guard's navigation requirements for Great Lakes shippers.

One of the greatest threats to the Great Lakes in terms of spills are bulk oil storage facilities. We have literally thousands of these storage tanks on Great Lakes shorelines, and we know that most storage tank collapses take place in northern climes during cold weather. The collapse of the Ashland oil storage tank last year dramatized the weaknesses in EPA's spill prevention program and led to a detailed review of it by an EPA Task Force, the General Accounting Office (GAO) and Congress. Reports issued by the EPA Task Force and GAO urge strong measures to beef up the program by strengthening enforcement actions and regulations.

Unfortunately, the recommendations in the EPA report, which have been out for over a year, have yet to be implemented. EPA inspections of oil storage tanks continue to drop from a high of 3,500 in 1976 to a low of 1,000 in 1988. This decline has continued despite a suggested annual target of 6,500 inspections and non-compliance rates of 56% and 74% in two key regions around the Great Lakes. Recommended actions to develop national inspection targeting principles, an inspection manual and a training course have not happened, and regulations to strengthen the program remain in draft form. We need to ask why EPA has not moved faster given the Ashland disaster and ongoing threats to the Great Lakes and other inland waters.

We also need to ask questions about the decline of the Coast Guard's environmental protection programs in the Great Lakes. During the 1980's, Coast Guard resources for marine safety and environmental protection programs have fallen more than 50%, from about 14% of the Coast Guard's fiscal year 1980 budget to about 6% in fiscal year 1990. Coast Guard slots for marine safety personnel have fallen, too. For example, slots in the Ninth District, which covers the Great Lakes, have dropped from 213 in 1979, to 153 in 1989, a drop of about 30%. Cuts were also made in some of the District's Marine Safety Offices, including the Detroit office which has gone from 39 persons in 1979 to 15 persons in 1989, a drop of almost 60%. Marine safety inspection statistics reflect the same decline. Vessel inspections nationally have dropped from about 40,000 in 1979 to about 17,000 in 1988, while inspections of port facilities have declined from about 15,000 in 1979 to about 5,000 in 1988. The same trend exists for the Great Lakes District. But given the doubling of spills in US waters in the Great Lakes, it is time we took steps to reverse these trends.

We also need to ask the Coast Guard about Great Lakes navigation rules which limit the areas in which ships must use pilots familiar with the Lakes' navigational hazards; which allow ships to waive even these limited pilotage requirements if a Great Lakes pilot can't be located within 6 hours; and which allow foreign vessels to operate in undesignated waters under so-called "B certificates" requiring minimal familiarity with Great Lakes hazards. Navigation rules are critical to spill prevention efforts in the Great Lakes and must be designed with that objective in mind.

Finally, we need to ensure that federal and industry research programs will address spill prevention as well as spill response concerns.

The Great Lakes are a national treasure. There is a lot that needs to be done to improve our spill response and prevention capabilities. I hope this hearing can play a role in getting the federal government moving on that critical effort.

Senator LEVIN. Now, let me call upon Senator Kohl and see if he has an opening statement. Senator Kohl is one of the newcomers to this Subcommittee, but he has already shown an extremely deep interest in the Great Lakes, both through hearings he has chaired and through other means.

Welcome, Senator Kohl. Do you have a statement?

OPENING STATEMENT OF SENATOR KOHL

Senator KOHL. Thank you.

I would like to begin by commending Senator Levin for scheduling this important and timely hearing on the issue of oil spills in the Great Lakes and the adequacy of current prevention and response capabilities.

The entire Nation watched in horror as the *Exxon Valdez* emptied its toxic cargo into the Prince William Sound, while emergency response capabilities were found to be woefully inadequate. Hundreds of miles of coastline were blackened with crude oil, killing wildlife and destroying essential habitat for years to come.

But while this tragedy has raised public awareness about the need to prevent and respond to oil spills in our Nation's waters, very little has been said about the threat posed by hazardous spills in the Great Lakes, which occur almost weekly. We depend on the abundant freshwater from the Great Lakes for a variety of reasons, including drinking water supplies for millions of Americans, industrial water supply for thousands of manufacturing facilities, and commercial transportation. Clearly, while a hazardous spill anywhere can have serious economic and environmental impacts, the consequences of a major spill on the Great Lakes could be devastating to our Nation.

Furthermore, a variety of factors make the Great Lakes particularly vulnerable to hazardous spills. Most significantly, the Great Lakes are a closed system, with long water retention times and no outlets for the dispersal of spilled materials. In addition, frequent storms and severe weather on the lakes, and the resulting high waves and low visibility, make cleanup activities difficult and dangerous. Finally, swift currents in the connecting channels between the lakes could quickly carry spilled materials from one lake to another.

Obviously, the best way to protect the Great Lakes from oil spills is to prevent them from ever happening in the first place. The old adage still rings true: An ounce of prevention is worth a pound of cure. While no amount of cleanup may ever completely restore the environment of Prince William Sound, it might have been avoided if Joseph Hazelwood's history of driving while intoxicated had been known. I hope we learned a lot from that incident, and I hope that this hearing will tell us what we need to do to prevent spills on the Great Lakes.

And when human error or Mother Nature defy even our best prevention measures, then we must be able to respond immediately to mitigate the damage to the greatest extent possible. In my opinion, the 12-hour delay in responding to the Alaskan spill is inexcusable. We want to find out whether the same thing could happen following a spill on the Great Lakes.

Would authorities be able to mobilize the necessary equipment and manpower before our shores are soiled and our water supplies are contaminated? Do we have reasonable contingency plans, coordinating the activities of the various local, State and Federal governments, as well as U.S. and Canadian efforts? Can we count on the contractors hired to carry out response measures to do an adequate job? These are all serious questions that deserve serious answers, and sooner rather than later.

My concerns about these and other questions prompted me, along with Senator Levin, to introduce an amendment to the oil spill legislation recently approved by the Senate, requiring the U.S. and Canada to review any relevant treaties and agreements and report back to Congress on whether the 2 nations need to update and improve provisions relating to hazardous spill prevention and response. Field hearings which I chaired in Green Bay and Milwaukee last May, and a meeting I convened in Superior last month, had already convinced me that this Nation is not doing enough to protect one of its greatest natural resources—our Great Lakes.

So, again, I commend Senator Levin for conducting this hearing and for his continuous efforts to improve the environmental quality of the Great Lakes. I look forward to learning more this morning about what we can do to prevent another tragedy like the Exxon Valdez incident from occurring in the Great Lakes.

Thank you, Senator Levin.

Senator LEVIN. Thank you, Senator Kohl.

I have a statement from Senator Glenn that I would like to put in the record at this time.

[The statement by Senator Glenn follows:]

OPENING STATEMENT OF SENATOR JOHN GLENN

The topic of today's hearing is especially timely as the House and the Senate are working together to produce legislation that will help protect our coastlines and wildlife from dangerous oil and hazardous materials spills. It is particularly important that we are focusing on the Great Lakes now, to make it clear to our colleagues just how crucial it is to prevent the further contamination of our precious international resource.

Unfortunately, as is the case in many environmental problems that span a number of agencies, States, and countries, efficient coordination and adequate funding are lacking. According to the Ohio Environmental Protection Agency (OEPA), the Coast Guard has lost about 53% of its pollution response funding since 1979. The U.S. Environmental Protection Agency (USEPA) has decreased Spill Prevention, Control, and Countermeasures Program compliance inspections in the Ohio area from a high of around 600 per year to approximately 36 for 1990. Witnesses before the Subcommittee today will show clearly how desperate the overall funding situation is.

Spill data and equipment inventory information is not presently being coordinated on a regional basis or in a way that emergency response managers can use. During the Ashland Oil spill, which eventually reached the Ohio River, numerous attempts were made to trace down an oil containment boom supposedly reserved for such crises. The boom was eventually found in Texas, too late and too expensive to transport.

There is some hope on the horizon for a truly regional approach to spill prevention and remediation in the Great Lakes. In February of this year, the International Joint Commission's Science Advisory Board convened a seminar to discuss the creation of a Great Lakes spill database. The Commission will receive those recommendations at its biennial meeting in October. They will likely include a comprehensive spill reporting system and more careful procedures by vessels and lakeside storage facilities. The Commission should act quickly to help integrate international, federal, state and local efforts. Also, legislation recently passed the Senate establishing an oil spill prevention and mitigation research program which should have a significant Great Lakes component.

In early 1988, a Sun Chemical pipeline released approximately 80,000 gallons of toluene into the Sandusky River. Fortunately, the slick did not make its way to the spawning beds of our famous Lake Erie walleye or perch in Sandusky Bay. Or to the drinking water intake of the City of Sandusky. Luck was on our side in that case and the situation was controlled. But, we have too much to lose by being unprepared and a great deal to gain by preventing such dangerous spills in the first place. I am hopeful that our efforts here will act as a catalyst to increase funding and improve coordination of oil spill prevention and cleanup.

Senator LEVIN. Our first witness this morning is David F. Hales, who is the Director of Michigan's Department of Natural Resources. A particularly warm and early welcome to you. If you could introduce who is with you, we would appreciate it.

TESTIMONY OF DAVID F. HALES, DIRECTOR, MICHIGAN DEPARTMENT OF NATURAL RESOURCES,[1] ACCOMPANIED BY J.D. SNYDER, DIRECTOR, MICHIGAN OFFICE OF THE GREAT LAKES, AND CHAIR, GREAT LAKES COMMISSION TASK FORCE ON EMERGENCY PREPAREDNESS, AND CAPT. ARLYN BROWER, COMMANDER, MICHIGAN STATE POLICE EMERGENCY MANAGEMENT DIVISION

Mr. HALES. I will do that, Senator. Thank you very much.

I appreciate the opportunity to represent Governor Blanchard and many people in the State of Michigan who are working to prevent this kind of tragedy from occurring in the Great Lakes and to be sure that we have the response capability should one ever occur. With me this morning——

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[1] See p. 63 for Mr. Hales' prepared statement.

Senator **Levin**. Mr. Hales, if you could pull your mike a little closer, as close as possible.

Mr. **Hales**. All right.

Senator **Levin**. Thank you.

Mr. **Hales**. Is that better?

Senator **Levin**. Yes. Just up a little bit. That is great.

Mr. **Hales**. One of them is going to record my tie, no matter what we do.

Senator **Levin**. Well, your tie looks beautiful, so it will be all right.

Mr. **Hales**. How does it sound?

Senator **Levin**. It sounds not as good as it looks. [Laughter.]

Mr. **Hales**. With me this morning are Capt. Arlan Brower on my left of the Michigan State Police. He is the Commander of the Emergency Response Division and chairs the Governor's Task Force on measures to improve our preparedness to respond to oil and hazardous material spills on Great Lakes waters.

Also with me, on my right, is J.D. Snyder, the Governor's Director of the Office of Great Lakes, who chairs the Great Lakes Emergency Preparedness Task Force.

If it is appropriate, Senator, I will summarize my testimony, and you have it for the record. We will make many of the same points that you and Senator Kohl have made in your opening remarks.

Senator **Levin**. That will be fine, and your entire statement will be made part of the record.

Mr. **Hales**. Thank you, Senator.

In the testimony, I will argue that the Great Lakes are a unique and precious resource, yet it is a resource which is particularly vulnerable to the spill of hazardous materials. It is incumbent on us to do everything that we possibly can to prevent spills of oil or hazardous material, and to develop the capacity to respond quickly and effectively if a spill does occur.

There is much that States can do to prepare themselves to meet such an emergency and to prevent such an emergency, and yet the ability of States acting individually, or even in concert on a regional basis, is limited.

There are two additional factors which must be present if we are to have a satisfactory situation in the Great Lakes. We need first, and perhaps foremost, leadership and funding from the Federal Government. And make no mistake about it, Senator, there is no leadership without funding. We have had at the State level in environmental program after environmental program about all of the leadership without funding that the States can afford. In this particular area, it is critical that the Federal resources, financial resources meet the responsibilities which only the Federal Government can accomplish. Secondly, we need the acceptance, prior to a spill, of responsibility by the businesses involved in the generation, the use, the storage, and the transfer of hazardous materials. Without these two critical items, we place one of the world's most remarkable resources at great risk. On each of these points, we have some specific recommendations and would certainly be willing to answer questions.

Everyone has their statistics that portray the value, the vulnerability, the uniqueness of the Great Lakes. I will not go through a list of them. But I will ask you to remember, if you will, four figures: 70, 3, 20 and 1. If you look at this planet from outer space, you will see that 70 percent of its surface is covered with water; 3 percent of that water is fresh; 20 percent of that water is in the Great Lakes; and 1 percent is renewable on an annual basis. 70, 3, 20, 1. Those figures, as well as any other statement that I could make to you summarize the importance of the task that is here before us today.

As we look at the Great Lakes and we look at the situation which confronts us in the Great Lakes, we need to ask whether there is real potential for a spill, and the answer is yes; whether we are ready to respond to a spill, and the answer is no; whether State action can do much to respond to that, and the answer is yes, but not enough; and we need to look at recommendations for Federal action.

Spills are of particular concern in the Great Lakes because of many of the factors, Senator, that you listed. It is a closed system. It is fresh water. It is water that is used for drinking. It is water that at least a fifth of U.S. industry depends on. It is water in which dispersants used in salt water are unsuitable for treating a spill. We have winter problems which compound the situation on the Great Lakes that would make any spill that would occur more difficult to respond to. The size of the lakes, the remoteness of some areas, and the population concentrations which occur in other areas of the Great Lakes make the problem even more complex. Rapid currents in connecting waterways would make any spill in areas where perhaps the risk is higher particularly difficult to handle. And the Great Lakes are uniquely vulnerable to land-based spills, as the statistics that you used in your opening statement clearly indicate.

The spills occur. We know that they are there. Are we ready to respond? That depends on our ability to get the right people, well trained, on site as quickly as possible with the equipment necessary to do the task. That is the lesson of the spill in Prince William Sound and the lesson of all other spills. And I am afraid, Senator, that the answer is that we are not prepared to have well-trained people to the site quickly with the right equipment should a spill of major proportions occur in the Great Lakes.

Governor Blanchard, in looking at this situation, has asked us to prepare a report and to follow up on that report to enhance the preparedness on the part of the State of Michigan. There are some 28 measures that we will be taking in response to this situation. We would certainly be glad to discuss them with you, but I think more important for the subject at least of the initial testimony are areas where we believe that a closer working cooperation and partnership and support from the Federal Government would be most effective.

It is absolutely necessary that emergency response centers be established in the Great Lakes Basin. As you know, the oil industry has developed a national plan to respond to oil spills, which includes the proposal for 5 emergency response centers on the country's ocean coast. Each of these proposed centers is simply too far away to be of any real use in the effective, immediate response in a Great Lakes oil spill. I have communicated with the American Petroleum Institute and asked them to reconsider their decision. They have written back still unresponsive to our request to consider the establishment of an emergency response center. We will continue that dialogue with them, and we hope that we will be able to be persuasive in getting industry to take responsibility in advance of a spill to set up methods necessary to respond. It is also important that the Coast Guard strike teams be increased back to three, and that one of those strike teams be placed in the Great Lakes area.

Second, there is no substitute for Federal leadership and funding in the area of cleanup technology and research.

Third, pilotage in the Great Lakes is of critical concern to us, and Governor Blanchard joins with Representative Bonior and Oberstar and others who have encouraged Secretary Skinner to conduct public hearings before changing any pilotage standards which might relax current requirements, and it is obviously a subject that we need to pay attention to in negotiations with Canada because their standards are not as strict as those of the United States.

Fourth, we need a uniform spill notification and tracking system, and the leadership for that must come from the Federal Government. We need a central notification and dispatch center with a 24-hour notification point that allows us to move quickly in the event of a spill.

Fifth, we need to update the contingency plans so that they are fully responsive to current patterns of traffic and situations and materials which are carried on the Great Lakes.

Sixth, we need, as both of you have mentioned, to strengthen the Spill Prevention, Control and Countermeasures inspection program that EPA runs. In the past 2 years, they have inspected some 22 facilities. A conservative estimate of the number of facilities in the Great Lakes is 20,000 or more. That program certainly needs to be expanded.

And, seventh, we need strong leadership and funding from EPA in the area of full, uniform, and consistent implementation of Title III's emergency planning requirements in SARA.

Mr. Chairman, that is a brief outline. Certainly, we would try to be responsive to any questions that you would have for us. I would make one last point, and that is that certainly what happened in Prince William Sound is a tragedy. The greatest tragedy of all would be for us to not learn from that tragedy and prevent the same tragedy from occurring elsewhere.

Senator LEVIN. Mr. Hales, we thank you for your very forthright testimony. It is discouraging, but it is straightforward. It is honest and to the point, and we are grateful for it. It makes a number of very clear points, and I want to go over just a few of those with you.

Let's talk about a million-gallon spill, which is a possibility on the Great Lakes. It has happened. That would be classified as a major discharge. Most of the spills that we have obviously are not that; they are small. We are able to handle the small ones. It is the major discharges that we would find most threatening, those that are classified, I understand, as being 10,000 gallons and up. So let me just take that hypothetical million-gallon spill.

As I understand it, we have at least some carriers of oil, for instance, that can carry 5 million gallons at a time in the Great Lakes. So a million-gallon spill is a possibility.

Could we adequately respond now to a million-gallon spill on the Great Lakes?

Mr. HALES. No. There are ways to expand on that answer, but I am not sure that expansion is particularly necessary.

I might, Senator, call on Captain Brower to respond and expand on that answer, but the simple answer is no, we could not respond adequately to a spill of that magnitude.

Arlan.

Captain BROWER. I think that is true, Senator. Of course, it does right now depend upon where this might occur. In the Detroit area, we might have a fair chance. If it happens up in Traverse City, I would say there is no way that it would be possible.

Senator LEVIN. Is the spill impact dependent not only on where it occurs geographically in the Great Lakes but also as to whether it is near a channel or in a channel? Does it have a far worse impact if it is close to the connecting channels?

Captain BROWER. Absolutely, because of, as I think Senator Kohl brought up, the swiftness. It takes a different type of containment to handle in the swift water as opposed out on the Great Lakes. And I think that the Coast Guard will be the first to tell you as well that they are unable to respond very effectively once they get outside of the Detroit area.

Senator LEVIN. The State of Michigan has issued a report in this area, and one of the findings of that report is that there is either no adequate inventory now of the equipment that is available and where it is located, or at least you do not have that available to you. Is that correct?

Mr. HALES. That is correct, Senator. The primary author of that report, Mr. Snyder, is here with us, and he would be able to respond to that.

Senator LEVIN. Let me ask you, then, Mr. Snyder. Where did you check to look for that kind of a comprehensive list of what equipment exists now? Did you check with the Coast Guard, for instance?

Mr. SNYDER. We initially checked with the Coast Guard, which, of course, has the jurisdiction for responding to spills on the waters of the Great Lakes. We also initiated an internal review in the Department of Natural Resources to identify what kinds of equipment we have and where that equipment is located. We are still conducting that review of the internal departmental inventory.

Senator LEVIN. So you are still putting together an inventory which tells you which firms are available on the Great Lakes and what their inventory of equipment is and the condition of that equipment, the amount of the equipment?

Mr. SNYDER. That is another step that we will take, and I wanted to also add, in my role as the Chair of the Regional Great Lakes Emergency Preparedness Task Force on Great Lakes issues, that the respective States are working together to conduct such an inventory as well. And we will be looking at inventorying private sector equipment that would be available to us on the Great Lakes, as well as any equipment that would be owned by any of the States themselves.

Senator **Levin**. All right. I take it the major quantity of equipment that we are talking about would be in the private sector.

Mr. **Snyder**. That is absolutely correct, Senator.

Senator **Levin**. So the States are now compiling the inventory of what equipment exists, both in the private and public sectors?

Mr. **Snyder**. That is correct.

Senator **Levin**. And the condition of that inventory?

Mr. **Snyder**. We will certainly try to get into that as much as we can to the degree that we are able.

Senator **Levin**. Okay. Now, you say that the Coast Guard has the jurisdiction to respond to a spill. Can you go through that with us for a minute? There is a spill, let us assume, in one of the Great Lakes. It is a major spill for the purpose of our hypothetical. Who has what responsibility immediately, going through the owner of the ship, the State, the Coast Guard, EPA? Tell us who has got what responsibility time-wise.

Mr. **Snyder**. Well, the Coast Guard would be the agency with the primary jurisdiction for anything that happened on Great Lakes waters, given the fact that those are navigable waters under Federal law and Interstate Commerce clause. There would also be implications of working with the Canadian Coast Guard if there was any question as to which side of the boundary it would be on. It would also activate in all likelihood the regional response team depending upon the size and magnitude of the spill which occurred, which is established under the Clean Water Act, as I recall.

Senator **Levin**. Who would decide to call in whatever number of private people are necessary to contain it?

Mr. **Snyder**. That would be the call by the Coast Guard.

Senator **Levin**. And would the ship owner have a certain length of time to decide to do that, to take responsibility for the spill and to make those phone calls to the private industry to clean it up or to contain it? If you do not know, that is all right.

Mr. **Snyder**. I could not really give you a good, sound empirical answer on that. It would be speculation on my part, Senator.

Senator **Levin**. All right. Fair enough.

Captain, are you able to answer that?

Captain **Brower**. I think he is exactly right. The Coast Guard is the one that would be primarily responsible, and the private ship owner I think would not have that responsibility.

Senator **Levin**. Okay. Let me go back, then, to you, Mr. Hales. Do we know whether or not—since we have not completed the inventory—the current inventory that exists in the private and public sector is adequate, if put together, to contain a spill of the type that we have described?

Mr. **Hales**. We cannot know that, Senator, until we have completed it, but every indication that we have indicates that the inventory would not be sufficient; that there are in a number of instances special kinds of equipment, perhaps similar to the ones that the Canadians developed a number of years ago for fighting oil spills, particularly during winter conditions or icy conditions, which have deteriorated and they are no longer available to us. So the indications that we have immediately are that the equipment is not available to us.

I think the important thing to emphasize there is the word "available." If we do not know where it is, it is not available. So we need to have the kind of response capability working through the Michigan State Police that accesses equipment that exists and is able to move it quickly. We do not have that capacity at the moment.

Senator LEVIN. Now, if the responsibility is the Coast Guard's, why do you need to have access to that equipment?

Mr. HALES. I am using the most general "we," as you used it earlier.

Senator LEVIN. In other words, the country.

Mr. HALES. Yes.

Senator LEVIN. It is not the State——

Mr. HALES. Those of us interested in protecting that resource need to have that equipment.

Senator LEVIN. We as a people. All right.

Now, do you know if there are any proposals to supplement the existing equipment by some kind of an additional governmental stockpile that might be available to industry, for instance, to supplement their own? Do we know of any proposals?

Captain BROWER. No, but we would really support that, Senator. That is one of the areas of difficulty that we have. In many of the remote areas, there are not the resources there, and we need some assistance in making sure that we are able to stockpile needed equipment around the Great Lakes.

Senator LEVIN. Give us the nature of the equipment. Would that be, for instance, booms?

Captain BROWER. Booms, skimmers, those types of things.

Senator LEVIN. Skimmers. What about barges?

Captain BROWER. Well, obviously, you do need that to off-load when they use the skimmers, so all types of oil cleanup equipment would be needed and needs to be stationed around the various locations.

Senator LEVIN. That would be to supplement what already exists and which would be available to the persons that are identified to carry out the containment and the cleanup?

Captain Brower. That is precisely right.

Senator LEVIN. All right. My time is up. Senator Kohl?

Senator KOHL. Thank you, Senator Levin.

It is very rare, I think, that a hearing occurs in which there is such unanimity of opinion, feeling, and fact on a subject matter under discussion, and on such an important matter. What we are saying and what you are saying is that there are totally inadequate provisions for an oil spill and that we are vulnerable unless we do something about it. There does not seem to be too much disagreement about that.

Mr. HALES. No debate at all, Senator.

Senator KOHL. I think that is very important to recognize at the outset here.

I would still like to talk a little bit about the cleanup. It seems to me that much of the cleanup work falls to private contractors, and I believe you are saying that. Is that a fair statement?

Mr. SNYDER. That is true.

Senator KOHL. And these private contractors use their own equipment and train their own personnel and develop their own cleanup plans. How do we know that they do a good job? How does a State like Michigan make sure that a contractor is well prepared?

Mr. HALES. Since Arlan coordinates all of those emergency responses for the State, for inland spills as well as those which affect the waters, let me ask him to walk you through that.

Captain BROWER. Well, I think, Senator, we are just getting into that. You are going to have someone on the panel by the name of David Usher later on today who is one of the leaders in the private cleanup area. And we have to look at what experience they have had and, those that have been involved, what their past history has been and what equipment they are able to bring; also look and see what type of training their particular people have. That is one of the things that we are doing, trying to do an inventory not only of equipment but what type of training is available and what the response teams have.

While we are on that, Senator, that is one area where the Senate could greatly help all of the States; that is, in getting training dollars. Under the SARA Title III, we were given $5 million for 2 years under EPA, and then it was turned over to FEMA for the last 2 years, $5 million used for training for hazardous material response. We only got 2 years of that, and the money is running out and will be gone by the end of this calendar year.

Michigan is in the process of building a Michigan hazardous material response training site, and we need dollars desperately to get people trained to handle various types of hazardous and oil spills. And so if you can assist us in that, Senator Mikulski is bringing that up as a supplement to the appropriation bill in the very next few days, I believe. And Michigan and other States desperately need that money for training, which would be greatly enhanced, as you said, in the prevention of disasters.

Mr. HALES. Senator, if I might expand on that, the reason that that is so critically important is for most of the spills which would occur in the Great Lakes, your primary responder would be a local emergency coordinator. We have been able over the past several years to train, I believe, 5,000 individuals in the State of Michigan.

Captain BROWER. Yes.

Mr. HALES. We have a pool of about 50 to 55 thousand individuals who need training if we are to have that kind of immediate effective response. That is a responsibility that falls to Government to have that primary response. We do that through the system set up in Michigan, as in other States. But trained people available to respond quickly are absolutely necessary, not only to effect the response but also so that we do not put people in life-endangering situations as they go into it. We do not want them in a situation that they are not trained to handle.

Senator KOHL. I would like to ask this question. Recognizing that in our democracy public opinion drives many decisions—and this is not meant to be critical but to elicit perhaps some useful kinds of dialogue and information—do you think that if your department and other DNR departments around the Great Lakes highlighted the deficiencies that exist to the extent that you say they do—and we agree—we could get the kind of response, reaction, and funding from Government that you believe is necessary to do the job?

Mr. **Hales**. I think we have to be very circumspect and very careful, Senator, with using that particular avenue for public response. I think we need to tell the truth. I think we need to be very factual in our response. And part of that truth is that we have been—to date, because of the size of most of the spills as Senator Levin pointed out, we have been able to respond fairly well. We need not overstate the risk in order to make the point, which is that our capability to respond quickly to a major spill simply is not there.

I think it is very important that we not overreact to the situation, but it is important that citizens in Michigan and in other States know exactly what the facts are.

Senator **Kohl**. Well, I agree. Certainly, no one ever wants to overreact to anything because that is always a mistake. But I thought I heard you saying that we are at serious risk in the event of a major oil spill, which could occur, of contaminating very seriously the Great Lakes which would be a disaster for this country, particularly those of us who live in the Great Lakes area. So how do you overstate?

If that is your feeling, and I believe you are right, how can you overstate the seriousness of the problem?

Mr. **Hales**. I do not think we can put risk terms on the magnitude of the problem until we have more information about it. If you look at the 28 steps that Governor Blanchard has asked us to take, a substantial number of those have to do with being able to draw the picture very accurately, information that we simply now just do not have about the total risk that faces us.

We cannot tell you, for example, the number of oil facilities, on-land oil facilities that border the Great Lakes. We have been trying to get just a number for that one simple question. The questions about inventory. So the actual quantification of that risk is part of the task that is in front of us. It is serious, and your summary of my testimony I think is very accurate.

Senator **Kohl**. Thank you, Senator.

Senator **Levin**. Thank you, Senator Kohl.

By the way, relative to your last statement, the risk of a major spill in the Great Lakes is greater from that on-land oil tank, on or near the shore of the Great Lakes, than it is from a ship having an accident in the Great Lakes—is that correct? As a matter of fact, 75 percent of our spills, I believe, and I think all of our major spills so far——

Mr. **Hales**. The numbers would indicate that.

Senator **Levin** [continuing]. Come from on-land facilities. So that things like inspections, which we are going to talk about later this morning, when they go down—and there is a direct correlation showing that spills go up when the inspections go down—so when these inspections have been going down, we are taking a major risk of a spill.

Mr. **Hales**. And it is the cheapest possible thing that we could do. As Senator Kohl pointed out, prevention is by far the cheapest approach that we can take to all of this. It is what we are emphasizing in our programs. It is what we believe the Federal Government, our colleagues in the Federal Government emphasize. Funding is necessary if we are really going to be serious about prevention.

Senator **LEVIN**. And in this case, a relatively small amount of funding for those inspections by the EPA of those onshore facilities that are adjacent to the Great Lakes and which create the greatest risk of a major spill into the Great Lakes. One of the points which I think really is lost frequently is that the threat to the Great Lakes from a major spill is greater from those onshore facilities that are adjacent to the Great Lakes than they are even from ships that are plying the waters of the Great Lakes. I think you have made that point this morning.

Mr. **HALES**. The numbers certainly indicate that.

Senator **LEVIN**. At least statistically.

Captain **BROWER**. That is why training goes along with that, Senator, if we can train people to respond.

Senator **LEVIN**. Let me ask one additional question, and that has to do with water treatment plants and contingency plans in the event of a spill. I believe that Michigan now requires our water treatment plants to have contingency plans in the event of a spill that could affect the intake of their water.

Mr. **HALES**. That is correct.

Senator **LEVIN**. Do we know whether other States in the Great Lakes region have those contingency plans or not? Do we know that?

Mr. **SNYDER**. I do not know the answer to that.

Senator **LEVIN**. All right. Do you have any additional questions?

Senator **KOHL**. One other question.

In your testimony, Mr. Hales, you point out that the industry's plans for five regional response centers will not adequately protect the Great Lakes because the nearest center would be too far from the Great Lakes to allow for a speedy response. And you note that the American Petroleum Institute declined to locate a center on the Great Lakes despite your explanation of the need for such a center.

Mr. Hales, what reason did they cite, if any, for failing to give the Great Lakes equal protection relative to our ocean coastlines?

Mr. **HALES**. Their response, Senator, was that they felt that it would be sufficient to fly material in from the Atlantic Coast of New York State to respond to a spill in the Great Lakes. We have expanded our discussion with them in terms of the reasons why we think a spill response center is necessary on the Great Lakes, and I would prefer to characterize the discussions as ongoing. I hope they will be responsive to that.

I believe that we can make the case. Both of your opening statements, the facts that are in our testimony, I believe make the case, and I am hopeful that the industry will respond.

Senator **KOHL**. Thank you.

Senator **LEVIN**. Thank you, Senator Kohl.

We thank all of you very much for coming. There may be additional questions in writing for your response for the record.

Mr. **HALES**. Thank you.

Senator LEVIN. We next have a panel that is made up of Timothy Fields, Jr., who is the Director of the Emergency Response Division of EPA; we have Admiral Richard Appelbaum, who is Commander of the Ninth Coast Guard District; and Edward Tennyson, research scientist for the Minerals Management Service of the Department of the Interior.

I think, Mr. Fields, you are first on our list, so we will call upon you first. Thank you for coming.

TESTIMONY OF TIMOTHY FIELDS, JR., DIRECTOR, EMERGENCY RESPONSE DIVISION, U.S. ENVIRONMENTAL PROTECTION AGENCY,[1] ACCOMPANIED BY CAROL FINCH, DIRECTOR, GREAT LAKES NATIONAL PROGRAM OFFICE, EPA

Mr. FIELDS. Thank you, Mr. Chairman.

I am Tim Fields, Director of EPA's Emergency Response Division. My responsibilities include the management of EPA's Emergency Response Program, where we do about 200 emergency responses to hazardous substances nationally each year and about 50 to 75 responses to oil into navigable, inland waters.

Today I am accompanied by Ms. Carol Finch, Director of EPA's Great Lakes National Program Office.

I will be discussing three elements of EPA's program—first of all, EPA's program for oil and hazardous substances prevention and preparedness; I will next talk about what lessons we have learned from Valdez and what we are putting into place to follow on from that; and lastly, I will be talking briefly about our position on the Michigan report on preparedness for major oil spills in Michigan as well as hazardous substances.

In the interest of time, I would like to have my entire testimony entered into the record, but I will synopsize certain elements of that in my oral statement.

Senator LEVIN. We appreciate that.

Mr. FIELDS. The Great Lakes Program Office was established administratively in 1978 to oversee the U.S.'s fulfillment of its obligations under the Great Lakes Water Quality Agreement. In 1987, this was incorporated as a statutory program in Section 118 of the Clean Water Act.

The role of the Great Lakes Program Office is in the development of policies of these programs, including the development of State programs that complement the Federal program, and to identify Government and private organizations that can act in solving these problems.

The National Oil and Hazardous Substances Contingency Plan is used to coordinate preparedness and response activities of Federal agencies during an oil spill or hazardous substance incidents. It establishes three organizational levels: the National Response Team, the Regional Response Teams, and the On-Scene Coordinator. The National Response Team, which is chaired by EPA and the vice chair is the Coast Guard, is primarily a national planning, policy and coordinating body and does not respond directly to incidents.

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[1] See p. 83 for Mr. Fields' prepared statement.

However, we are available to provide assistance and any kind of support necessary to the On-Scene Coordinator in the field.

During the actual event of a spill, depending upon whether it is in inland or coastal waters, the On-Scene Coordinator responsibility is handled by either EPA or the U.S. Coast Guard. The U.S. Coast Guard has jurisdiction over spills in the coastal zone, and EPA has jurisdiction over spills that threaten waters in the inland zone.

With Canada, our neighbors to the north, we have also implemented a Joint Marine Contingency Plan, which deals with responses along the borders of the United States and Canada. That is obviously led by the Coast Guard. We at EPA as well as others of the Federal family are working on a Joint Inland Border Plan right now with Canada. A draft has been prepared, and we hope to finalize that in the next several months.

At the present time, EPA regions are participating in exercises related to releases of oil and hazardous materials into the environment along the U.S. and Canadian borders.

EPA's role in spill response on the Great Lakes is to provide support primarily to the Coast Guard On-Scene Coordinator. EPA's primary responsibility for oil spill response in the Great Lakes Basin, as you indicated, Mr. Chairman, in your opening statement, is primarily in the area of non-transportation-related facilities, fixed facilities, located along the shorelines. We call that our Oil Spill Prevention Program, or the Spill Prevention, Control and Countermeasures Program, or SPCC Program. That program, administered by EPA, is the primary mechanism we utilize to try to prevent releases of oil into the environment.

This regulation, of course, applies to all non-transportation-related facilities in the Great Lakes area. The primary focus is to prevent releases of oil from occurring to begin with.

Following the Ashland oil spill of January 1988, a multi-agency task force was established, representing eight Federal agencies and several States, which I chaired, and that task force developed recommendations regarding how this program needs to be improved to prevent future major inland spills like the Ashland oil spill. We recommended that the regulations needed to be strengthened, made more mandatory rather than discretionary; we needed to establish a notification mechanism for each facility—no one knew where these facilities were located. As Mr. Hales just indicated, like Michigan, most States don't know where most of these facilities are in their States, and the EPA regions don't really know either. So we really believe that an inventory and notification system needs to be established. And thirdly, we need to expand and make better the inspection program. We need to develop a targeted inspection program and increase the number of inspections for this program.

That program was accepted by Agency management and that report is in the process of being implemented now at EPA.

Next, let's talk about *Exxon Valdez* and the follow-up on that. We are doing a number of things at EPA to improve our readiness and ability to deal with a major spill event. Based on EPA's analysis of the *Exxon Valdez* response, we are now fashioning a research program which has 3 primary research priorities: first of all, preventing oil spills from occurring; secondly, developing better cleanup technologies, and thirdly, developing better methods for environmental risk assessment. We can talk later if you want on the details of those three elements of our program.

Concerning preparedness, the National Response Team has directed all of the Regional Response Teams to evaluate their existing contingency plans and to make appropriate updates to make sure that we can respond when a major spill occurs. Those updates are due by November 3.

We at EPA have set up an On-Scene Coordinator Readiness Task Force which will make recommendations to the Assistant Administrator of the Office of Solid Waste and Emergency Response by December 15th of this year about how we at EPA can strengthen our existing capabilities to respond to a major oil spill or hazardous substance release event into the environment.

Then finally, I'd like to mention briefly our thoughts on the Michigan report. We think the Michigan report is an excellent summary of the situation in the Great Lakes area, particularly in Michigan, and provides some useful recommendations for further action. We discussed that report in some depth at a Regional Response Team meeting 2 weeks ago, and we believe that several of those recommendations are things that EPA can assist in. We will be working with Michigan to help where appropriate to implement the report recommendations.

Mr. Chairman, that concludes my statement.

Senator LEVIN. Thank you very much, Mr. Fields.

Next, Admiral Appelbaum, we are delighted that you are with us today and I am glad to see you again.

Please proceed.

TESTIMONY OF REAR ADM. RICHARD A. APPELBAUM, COMMANDER, NINTH DISTRICT, U.S. COAST GUARD [1]

Admiral APPELBAUM. Thank you, Mr. Chairman, Senator Kohl.

I am Rear Adm. Richard A. Appelbaum, Commander of the Ninth Coast Guard District, which has its headquarters in Cleveland, Ohio. My area of responsibility is essentially the Great Lakes.

The Coast Guard's Federal response for pollution on the Great Lakes is essentially the same as it is on the Atlantic, Pacific or Gulf Coasts. In pollution cases, the Coast Guard acts under the authority of the Federal Water Pollution Control Act in the case of oil, or the Comprehensive Environmental Response Compensation and Liability Act, or CERCLA, in the case of hazardous materials.

Coast Guard predesignated On-Scene Coordinators—and we have nine of them on the Great Lakes—investigate detected or reported incidents of pollution. In such cases, the Coast Guard's primary function is to monitor the actions of the responsible party. Where those actions are adequate and appropriate, we simply see it through to the end. Where the actions of the responsible party are inadequate or inappropriate—for example, where the responsible party is unable or unwilling to respond—the Coast Guard takes steps to abate and/or clean up the problem.

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[1] See p. 91 for Admiral Appelbaum's prepared statement.

Where the cause is not identified—and we refer to these as "mystery spills"—the Coast Guard's role, again, is to take steps to abate and/or clean up the problem.

When the Coast Guard must intervene, the most likely action is the hiring of commercial contractors. In such cases, we continue to monitor and exercise oversight as the process continues.

While the execution of commercial contracts is the most likely thing we do, we do have some Coast Guard equipment located at many of the marine safety offices and search and rescue stations throughout the Ninth Coast Guard District as well as onboard the ships that are deployed throughout the Great Lakes.

In the event a spill is too big or too complex for local contractors and our prestaged Coast Guard equipment, in the most likely scenario we would look to multiple contracts, even beyond the Great Lakes, or possibly one of the Coast Guard's specially-trained strike teams. The strike teams are based in Mobile, Alabama and San Francisco, California, and they can deliver and operate response equipment that is not available on the Great Lakes.

Our Great Lakes organization is governed by four plans. First, the National Oil and Hazardous Substance Pollution Contingency Plan, the national plan. This defines interagency organization at the national and regional levels, assigns agency responsibilities, and describes the general pattern of response operations. Second, the Regional Contingency Plan. This establishes the boundaries between the inland zone, which is governed by the EPA, and the coastal zone, which is governed by the Coast Guard. It also describes certain policies. An example of this would be the use or non-use of dispersants on the Great Lakes.

Third, local plans. These plans are prepared by each On-Scene Coordinator. These plans identify Government and commercial resources available in the local areas. It assesses potential sources of spills; it identifies environmentally-sensitive areas; it outlines the duties of those personnel under the command of the On-Scene Coordinator, and it specifies notice procedures and other technical points.

Fourth, we have the Canadian and United States Joint Marine Pollution Contingency Plan, and specifically, the Great Lakes Annex, which is known as CANUSLAK—Canadian-U.S. Lakes. This provides coordination of both countries in a response scenario.

In the 1980s, the 9 years through 1988, on the United States side of the Great Lakes themselves, there have been 654 spills from vessels. The largest was a spill of 900 gallons. There have been 1,210 spills from facilities on the shore. Forty-four of these were over 1,000 gallons, and 25 of that 44 involved oil. Fourteen were over 10,000 gallons, and 7 of those 14 involved oil. It is interesting to note that the largest spill from a vessel in the Great Lakes Basin occurred in the Saint Lawrence Seaway between the Iroquois and Eisenhower Locks and involved the motor vessel Bayograd, a Yugoslavian freighter. This spill caused damage to 18 to 20 miles of shoreline when the vessel, through human error, discharged 1,500 gallons of bunker oil or fuel oil.

The President has asked for a review of the contingency plans and the Great Lakes On-Scene Coordinators have been directed to comply and report their findings and recommendations. Although seven of the nine Great Lakes On-Scene Coordinators have revised their plans within the last year, all are reevaluating with a particular focus on a catastrophic or worst-case scenario. I expect that they will report that their locally-available resources are adequate for the largest spills based on historical records—for example, those between 10,000 and 20,000 gallons. A significantly larger incident would require involvement of contractors or Coast Guard resources from other areas.

Mr. Chairman, my prepared statement contains more details. I would be privileged to answer your questions.

Senator LEVIN. We thank you very much, Admiral. We appreciate your being here and your testimony.

Finally on this panel, we'll call on Edward Tennyson, research scientist with the Minerals Management Service of the Department of the Interior.

Mr. Tennyson, we welcome you.

TESTIMONY OF EDWARD TENNYSON, RESEARCH SCIENTIST, MINERALS MANAGEMENT SERVICE, U.S. DEPARTMENT OF THE INTERIOR

Mr. TENNYSON. Thank you very much, Mr. Chairman, Senator Kohl.

In the interest of brevity, I would like to submit the written testimony for the record and summarize that.[1] In addition, I also have a copy of the research program which we are undertaking within the Minerals Management Service specifically for oil spill response, research and technology assessment for the open ocean.[2]

I might add that there is not a lot of salt in the Great Lakes, to my knowledge, but basically everything that we are doing with the exception of research on the use of dispersants, is directly applicable to the Great Lakes situation. Any remarks that I make in terms of the state-of-the-art with specific respect to spill response, I think, are equally applicable to the Great Lakes.

In addition, the Minerals Management Service sponsored a technology workshop for specifically Alaska and Arctic offshore situations in November and December of last year, looking specifically at issues involved in cold water and ice response.

I would like to enter those as well for the record.[3]

Senator LEVIN. They will be made part of the record.

Mr. TENNYSON. The MMS has been supporting oil spill response research for the past 12 years, and up until 1986 was a co-member with the Coast Guard, EPA, Navy and Environment Canada in conducting an active research program and technology assessment program for oil spill response.

The MMS is charged with orderly and safe resource development, specifically oil and gas, for the Outer Continental Shelf. As such, we have been involved in oil spill response and oil spill prevention research since 1979.

I'd like to talk a bit if I may about the status of the "art" as we perceive it. Again, the comments will be equally applicable to the

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[1] See p. 97.

[2] See p. 110.

[3] The workshop report may be reviewed upon request at the office of the Subcommittee.

Great Lakes, except the discussion on chemicals, which I will briefly describe.

With respect to detection, there are several airborne systems that are capable of discovering and detecting oil on the surface. The Coast Guard has an excellent system aboard their aircraft; if they would care to talk about that, I'd be more than happy to let them. But specifically for response personnel on-scene, trying to direct the response effort for a major spill is primarily a visual effort. You look, and you see oil. From 20 to 30 feet up on the bridge of a vessel, you can see whether you are in oil or you are not in oil. But it is very difficult from that vessel to determine whether you are in oil thick enough to recover or whether there is a patch 300 yards away that might better suit your effort.

The Minerals Management Service, working with Environment Canada, is conducting an assessment and research effort on several remote sensing additions to existing equipment. This will in fact allow a thickness sensor capability from aircraft and a real-time capability to direct the response for a major spill.

We have known for years that after a spill has occurred, within hours most of the oil is very thin in areas, or a fair amount of it is. It is called the "90-10 Rule" and is not written down anywhere to my knowledge, but 90 percent of the oil is in 10 percent of the space, and 10 percent of the oil is in 90 percent of the space, and if you try to recover oil from 100 percent of the space, most of the time you're not in oil thick enough to efficiently use the equipment on-scene.

We are also working with using existing shipboard radar, navigational radar, that is on every vessel of any size, and we have been successful in tracking spills as small as 5 barrels—that would be about 250 gallons—out as far as 12 nautical miles and perhaps further. This requires no additional equipment, but a modification in the use of existing radar.

We are working specifically in laser-fluorosensors, either shipborne or aircraft-mounted, which will be, we think, quite worthwhile in the detection of oil and vapors resulting from that oil in broken ice and frozen situations. At present, detection of oil during broken ice or freezing operations, and solid ice operations, is again visually dependent. If the oil is in the ice or under the ice, or under surface snow, it can be very difficult to detect and therefore to respond to.

We are specifically trying to design and to evaluate working drogues; that is, satellite-interrogated, drifting buoys that behave as oil does. We know that oil pretty much drifts 3½ percent of the wind speed, and to some degree to the right of the wind in the Northern Hemisphere. But the local currents are not well-known necessarily, and they certainly affect the drift of oil.

We are also working on the behavior of oil because once oil is spilled it changes its physical and chemical characteristics very rapidly. With the exception of some of the fuel oils; for example, Bunker C, Number 6, and lube oil, certainly most of the crude oils that are transported and a number of the lighter diesel distillates, and other distillates, will behave very differently over a very short period of time. The concern is that in the open ocean, in several recent major spills, we have had oil that was not detectable by any existing means come ashore. We have had oil in the surf zone and on the beaches, but not seaward of that situation. We are working specifically to better identify and understand the behavior of oil, what its density will be, what its spreading rate might be, what we then can do to better counteract the oil over a period of time and what the best response techniques are.

The next step is containment; if you can find it, the next step obviously is to try to contain it. And with the open ocean gear that we have dealt with over the years, we have found a pretty ubiquitous upper limit of capabilities of equipment; that is, failure of containment equipment in sea states normally associated with winds of 15 to 20 knots. Almost all of them fail if you tow them through the water, or if the wind-induced current through the water causes the water to move through the boom in excess of one-half to three-quarters of a knot. I heard the comments earlier about trying to contain a spill in a high-current area.

We were successful, however, in going against the conventional way of working offshore equipment—and again, we are talking large skimmers and boom systems, which I think would be applicable to the Great Lakes as well. In going with the wind—where we said 15 to 20 knots is the upper limit in the conventional against the wind mode—we were successful in containing oil at winds up to 35 knots in the open ocean at tow speeds of up to 1.4 knots by going with the seas rather than against them.

We have opened a window of opportunity, I believe, for increased equipment capability with respect to containment again without requiring new equipment. We have increased the capability of conditions for operations that I think is quite dramatic by going with the wind.

We have at this point some 30 different boom designs for open ocean response in the U.S. waters. We do not have a standard test protocol at this point, although we are developing one, which will give us some idea of how well the equipment will work in advance. We hopefully, within the next 2 years, will have a standard protocol which will allow booms to be evaluated, full sections of booms, full pieces of equipment, in open water without the intentional spilling of 10,000 to 20,000 gallons of oil per boom, per type of oil, and per type of sea state, as has been the case in the past.

Recovery usually involves skimmers, and we feel that for open water, they have been fairly well-evaluated at the test facility that was jointly funded by EPA, Coast Guard, Navy and ourselves—which is no longer active. There are a number of new techniques and new technologies that do bear closer looking at, specifically, as was mentioned earlier, the concern for trying to recover oil from broken ice. We are evaluating, or anticipate evaluating, some Norwegian and Finnish equipment designed specifically to recover oil from broken "leads" and broken ice situations.

Disposal is always a problem for a major spill; once you have the oil, if you are successful in recovering it, and you store it onboard, then you take it to a transshipment point, and then you have to do something with it. It is getting increasingly more difficult to sell it back to the refineries or have the refineries come and get it to refine it. One of the techniques that we have been looking at is incineration, improved incineration, and improved air quality as a result of incineration of oil and oily debris.

Just briefly, on chemical dispersants, it has been the policy in the past in the United States, almost without exception, not to use dispersants in fresh water. We have found dispersants not to be routinely effective in saltwater, and research indicates that they are about one-third as effective in fresh water as they are in saltwater. So irrespective of the ecological concerns of using dispersants to treat oil in fresh water, we have some very real concerns about how effective they would be if they were used. As part of that concern, we are involved with Environment Canada in reformulation of dispersants which are far more effective and we think are at least in the same realm of toxicity. So we feel that there are some gains to be made in dispersant reformulation.

We are also working with nondispersant chemicals, two of which we have tested in the open ocean on intentional research spills off of Canada's eastern coast. Both of these have very significantly increased the capabilities of existing recovery equipment in small dosage rates. One particular chemical has routinely increased the recovery capability of skimmers by a factor of 10. What these primarily do is to prevent or inhibit the emulsion formation of oil—that is, the oil-water mousse—they retard slick spreading, and they in fact make the oil more physically recoverable because of changing of the adhesive nature of the oil itself.

I think the biggest single gain we have had, beginning in 1983, is evaluating the burning of oil in place once it is spilled on the open water. It is called in situ burning. We have looked at a number of various types of oil; Prudhoe Bay crude was one of them; as well as Amuligak oil, and a number of other imported oils. We have looked specifically at the effects of oil slick thickness, weathering, sea states, wind, temperature, degree of emulsification and extent of ice coverage, and we have routinely been able to burn 50 to 99 percent of the oil, removing it from the water column as long as emulsion has not significantly occurred.

Along those same lines, we are looking at the air quality situation now in terms of what are the burn constituents and what are the behavior of those constituents—that is, what happens to the plume over a major spill response.

Mr. Chairman, rather than going on through the extensive prevention efforts, the oil spill contingency plan requirements that we have, the training requirements that we have, the routine inspections, some announced and some not, the drills that we hold for offshore facilities, I would like to terminate my remarks at this point and would be most happy to answer any questions you might have on technology and research.

Thank you.

Senator LEVIN. Thank you so much, Mr. Tennyson.

First, Mr. Fields, let me ask you about some of the data that we have from the Coast Guard. That Coast Guard data indicates that for the last 3 years, spills in Canadian waters have been cut in half, while spills in United States waters of the Great Lakes have almost doubled. There is a chart[1] up there in front of you which gives you some of those figures, showing an increase in overall number of spills, at least in 1988 over 1986 and 1987, but what is doubly interesting is that the green portion of that bar, which is the spills of oil in U.S. waters, has gone up significantly since 1986 and 1987, but the Canadian portion of the overall number has gone down.

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[1] See p. 193.

I am wondering if you might give us a comment on that; what is the reason for that trend?

Mr. FIELDS. We did some analysis from a national perspective, and the data pretty much parallels the Great Lakes data last year. When we did the task force effort looking at spills, we found that there were an increasing number of spills that were occurring. We found that nationally, the number of spills from fixed facilities had been increasing over the last several years, and the numbers of inspections of those facilities had gone down.

As your data indicates and your statement indicated initially, a lot of those spills come from fixed facilities, storage facilities onshore.

We do believe that some of that increase—not all of it, but some of that increase in the number of spill events that has occurred in the Great Lakes area—may be due to the fact that we need to be strengthening the oil spill prevention and inspection program. We are taking steps now to do that.

We think that through a combination of three things—strengthening the regulations, making certain things required like integrity testing and other items; secondly, identifying and making sure the appropriate Federal officials know where those facilities are through an inventory which we are also doing, and we have spent about $200,000 this year trying to identify them; and thirdly, over time, increasing the number of inspections of those facilities—we can try to reverse that trend.

The trend we have seen in the last several years where the number of oil spills has been increasing, we hope to reverse some of that by strengthening our regulations and making our inspection program better.

Senator LEVIN. Now, the report that EPA issued last year also talked about increasing the number of inspections as a key element in the program, and yet we see the number of inspections has been reduced. In Region 5, for example, in 1986, there were 159 inspections; in 1987, 100 inspections—that is a sharp reduction right there. Then from 1987 to 1988, they were cut in half from 100 to 42 inspections, and that very, very low level, about one-quarter of the inspections in 1986, would be continued for fiscal year 1990.

So rather than increasing the number, we have seen a drastic reduction in the number of inspections. And what is particularly interesting is that the number of inspections is directly related, according to the statistics we have, to the number of spills; the greater the number of inspections, the fewer the spills.

Mr. FIELDS. Right.

Senator LEVIN. You'd think that would be true. Logically, there should be a correlation between them, probably. But this is an unusual, direct correlation that we find in the chart.[1] Most charts are not that clear. I don't think this one is up in larger form, but it is part of a handout which we have, showing——

Mr. FIELDS. I'm quite familiar with that chart, yes.

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[1] See p. 198.

Senator LEVIN. Yes. It is an unusual direct correction; as the inspections go up, the spills go down; as the inspections go down, the spills go up. It is a very unusual kind of correlation because it is so direct.

Mr. FIELDS. Yes.

Senator LEVIN. Now, the facts are that inspections are dramatically down, and we don't see them going up in fiscal year 1990. Have you requested your budget office for more than 42 inspections for 1990?

Mr. FIELDS. Yes. That number is being renegotiated with Region V. As a matter of fact, we are going to aim for 85 inspections. But let me tell you there is a constraint on fiscal year 1990. The 42 number will be going to 85 for fiscal year 1990, but this is the problem. The task force came up with this report last summer. That report was approved by Agency management on July 1st of 1988 after the Ashland oil spill. As you know, the Agency is under a 2-year budget cycle. When decisions are made, the results of that decision typically shows up 2 years later. The real impact on the oil spill budget is really not going to occur until fiscal year 1991.

The extramural dollars we have for the inspection program and oil spill response will go from the existing $1.9 million that we have in the budget for fiscal year 1989; in fiscal year 1991, the budget will go to $4.7 million. So there is a 2½-fold increase in the oil spill inspection budget from fiscal year 1989 to fiscal year 1991.

The task force recommendations came out. There was good consensus support across the Agency as well as other agencies—the Coast Guard and the Minerals Management Service were members of our task force. There was good agreement about the recommendations, but because of the Agency budget process, it was too late to impact the budget that had already been approved for fiscal year 1990. We are looking at trying to reprogram some existing resources for fiscal year 1990 to try to make those inspections increase, but the fact is that we were not able to make any significant dent in increasing the budget for inspections until fiscal year 1991. There is a $4.7 million figure that has been approved for inspections for fiscal year 1991 which is a big increase over fiscal year 1989 and fiscal year 1990.

Another point I'd like to make——

Senator LEVIN. Well, before you go on to your other point, let me see if I can get that clear. A year ago, the report came out saying increase the inspections, but that is, you are saying, not going to take effect until about 2 years after the report made the recommendation because of the budget cycle.

Mr. FIELDS. Right.

Senator LEVIN. But let me ask you this. Was it 95 inspections for fiscal year 1991—how many did you say——

Mr. FIELDS. Fiscal year 1990, the number will be 85.

Senator LEVIN [continuing]. 85—is that locked in, though?

Mr. FIELDS. No, that's not a locked in number. That number is always negotiable. I and headquarters control the dollars that go to the regions for oil spill inspection activity. That number, we got $1.9 million this year, and we have to allocate that limited $1.9 million to big oil regions like Region VI, Region V, et cetera, and try to be equitable based on need in determining where those oil spill resources go. That is a number we have negotiated with Region V. It could change, it could go up a little bit, but that number is not in concrete by any means. We give out quarterly allocations of dollars to the regions for oil spill inspection activity.

Senator **Levin**. But that's for fiscal year 1990.

Mr. **Fields**. For fiscal year 1990, yes.

Senator **Levin**. Okay. So we're talking about an 85 number. These inspections are critical, so we are not quibbling over numbers, we are quibbling over spills—and it is, again, a very direct relationship. But the number 85 which you have mentioned here this morning is the fiscal year 1990 expectation now.

Mr. **Fields**. Yes, a revised number.

Senator **Levin**. Okay. And when will that be locked in, that revised number for fiscal year 1990?

Mr. **Fields**. The 85 number I can assure you will be locked in.

Senator **Levin**. It will be, all right.

Mr. **Fields**. Yes—at least that amount. It could go up more, but at least 85.

Senator **Levin**. Okay. Now, there has been a great deal of discussion this morning about increasing the capability to respond to major spills in the Great Lakes. Can you tell us how we can increase that capability? Do you know yet, or is that now under review?

Mr. **Fields**. Well, as I and the Coast Guard Commander just indicated, we are doing a review right now. The Regional Response Team for Region V, which includes Detroit and other areas, had a meeting a couple of weeks ago, and they reviewed the request that came from the National Response Team that all Regional Response Teams review how we can be better-prepared for major release events, both oil and hazardous substances. That review of how we can increase our capability is ongoing now. That input is due in early November as to how the Regional Response Teams can be better-prepared to respond to a major emergency.

We in EPA, particularly the OSCs in Region V, are looking at how they can be better-prepared to respond to a major release event in the Great Lakes area. There is a separate task force being chaired by my deputy that is going on.

The Coast Guard has a task force that they have established looking at their strike team resources out of headquarters, looking at how they can increase the capability of the Coast Guard strike teams.

All those three parallel efforts are ongoing now. We don't have anything specific we can give you right now, but we can tell you that both of us, Coast Guard and EPA, are looking very earnestly at how we can be better-prepared in the future to respond in terms of resources, contractors, people, et cetera.

Senator **Levin**. Okay. As we have talked about it this morning, prevention is the first line of defense. Our prevention has gone down. It has gone down dramatically from 159 to 42 in terms of inspections.

Mr. **Fields**. Right.

Senator **Levin**. What you are saying is that that is going to go up a bit in 1990 to 85, but we still have to realize that that is just totally inadequate compared to what we had 2 years ago, which was roughly 160. At that increase, it still would be half of what we had just 2 years ago.

Mr. **Fields**. Right.

Senator **Levin**. What are you going to do to get the number at least back to where we were in 1986?

Mr. **Fields**. Okay. Let me speak nationally a bit and then go specifically to your question.

Senator **Levin**. I want to go to that specific number, if you don't mind, for the Great Lakes Region, for Region V.

Mr. **Fields**. I'm going to go to that, but I need to put this in context. When this program was at full bloom, we had 3,500 inspections we were doing nationally. That number has decreased over the years to the thousand figure we have been talking about now. The 159 figure for the Great Lakes was part of that trend, where the national number came down.

We never intended for this inspection program to be a program that would cover the entire universe of facilities that exist. As you indicate, there are more than 20,000—our regions indicate there are probably more like 50,000—SPCC-type facilities in the Great Lakes area. There is no way we would ever have an adequate number of resources to inspect all of those facilities to assure they are in compliance.

However, we are doing two things. We are going to target those inspections such that we inspect those facilities that are the most susceptible and could have the greatest environmental impact. An inspection strategy is being developed now in EPA.

Secondly, we are going to be increasing the number of inspections through EPA resources, the $4.7 million that I talked about in fiscal year 1991, over time. The SPCC task force report that came out last year said that we ought to be going from 1,000 inspections now to 6,500 inspections over a 5-year period. That was a plan for gradually increasing the number, going from 1,000 up to 2,000, et cetera. There was a plan in that report for getting to 6,500 over a period of 5 years. That is going to be done through a combination of EPA inspections and State inspections. Ten State programs have SPCC programs now; other States have passed legislation to develop those programs.

So I would assure you that we plan over the next several years to try to get this program back up to where it was in the late Seventies or early Eighties by doing thousands of these inspections over a period of time, going up to, let's say, 6,000 or so. We will never be able to do a comprehensive number. I can assure you that I strongly believe that we will be able to get back to the 160 or so figure in the Great Lakes area. I think it is merited——

Senator **Levin**. By when?

Mr. **Fields**. I would say in the fiscal year 1991 time frame. That's when the big dollars are going to come in.

Senator **Levin**. All right. So what you are saying is that we are going to get back to the 1986 level by 1991.

Mr. **Fields**. That would be a reasonable expectation.

Senator **Levin**. And even though obviously you cannot inspect 50,000 facilities with 160 inspections a year, if you can cut the number of spills in half by that minute investment——

Mr. **Fields**. I agree.

Senator LEVIN. You are talking an investment of a few million dollars compared to the cost of a cleanup of a spill—which can be a multiplier of that in one spill.

Mr. FIELDS. Yes, I whole-heartedly agree with you, Senator. We have done cost analyses, and we feel that the SPCC program is one of the most cost-effective programs that the EPA can administer in terms of bang for our buck.

Senator LEVIN. Senator Kohl?

Senator KOHL. I want to be sure I understood you correctly on the quality of your inspections, Mr. Fields. The date, the age, the location of these facilities indicates to what extent they are susceptible to spills, so that it is not only the number of inspections, it is the quality of the inspection that I think has a lot to do with ensuring the safety of these facilities.

Mr. FIELDS. Yes.

Senator KOHL. What did you say about that?

Mr. FIELDS. The report goes into some detail about that point. We made 19 major recommendations in the task force report that came out last year. We indicated in that report that we need to develop training, to standardize the inspections that are done across all of our regions. The 10 regions now do various things when they do inspections. Some facilities have a detailed checklist; others do what we call "windshield" surveys, where people go out and look at the facilities from a car. We are going to be developing a standardized procedure as to how an SPCC inspection ought to be done of these above-ground oil storage tanks.

We are going to be conducting training as to how these inspections ought to be done in the regions, to develop a standardized process.

Secondly, we are going to be developing a targeted inspection strategy, looking at data that we have developed over the past year—what is the age of these facilities? Is this facility 30 years old? Has this tank been reconstructed before? We are using that kind of data that we are developing now about age, types of materials, et cetera. We are going to be deciding which tanks ought to be inspected. The inspections will be consistent, and we will be increasing the numbers of resources we have for that inspection program.

That is basically what we have recommended in that report.

Senator KOHL. Thank you.

Admiral Appelbaum, as you know, the President unveiled his drug program last night, and drugs are the issue of the day, understandably. The Coast Guard has shifted its resources away from other programs and toward drug interdiction. Nevertheless, we are troubled about the significant increase in oil spills on the Great Lakes during the time that the Coast Guard has greatly reduced the amount of its budget spent on marine safety and environmental protection programs.

Admiral, do you think that the Coast Guard can effectively prevent and remediate oil spills given its current budget priorities?

Admiral APPELBAUM. Well, to answer you, Senator, I would point out that the Coast Guard's budget problems are systemic. They have been with us for many, many years, and we have been continuously burdened with more and more responsibilities, more missions, without corresponding growth in the budget.

Consequently, the axiom of "Do more with less" applies, and it is very, very apparent in the area of dealing with oil pollution or hazardous material pollution in the Great Lakes and throughout this country.

Indeed, the personnel have been redirected to deal with the more urgent, the higher-priority missions, and we have suffered losses in terms of the numbers of personnel available to us on the Great Lakes who are dedicated to the marine safety mission and the oil pollution/hazardous material pollution problem in that particular locale.

We try to compensate for this by improving technology, improving our coordination with State and local entities, and primarily by exercising the plans that we have in place. Certainly, with greater numbers of personnel and materiel available, we can do a better job in terms of our response capability, but we have a broad range of missions to perform.

Virtually every Coast Guard unit is a multimission unit. If we have a ship, for example, the *Mariposa,* which is home-ported in Detroit—that ship is a buoy-tender by identity, and it is responsible for aids to navigation in a large area of the Great Lakes. It is also available for domestic ice-breaking; it is also available for law enforcement; it is also available for pollution response when the time comes.

We need to expand our capability in terms of our multimission responses, and certainly, Senator, we would welcome any support we can get to give us that flexibility.

Senator KOHL. In view of your constraints, do you think we would do a better job if we were coordinating our activities more closely with the Canadian Coast Guard?

Admiral APPELBAUM. Senator, I think our activities are very closely-coordinated with the Canadian Coast Guard. My staff meets with them at least quarterly. We exercise our Joint Plan once every 2 years. The next exercise will be in 1990, and it is the United States' turn to organize the drill. We have already had planning meetings with regard to that anticipated exercise in 1990, and I would say that we have a very close and cooperative working relationship with the Canadian Coast Guard.

I know that the Canadian Coast Guard has a task force that is looking into their own organization and their own plans, and we expect that they will be visiting the Great Lakes region probably later on this month. If there is any issue that needs discussion, bilateral discussion, we are prepared to meet with them and to work things out.

As a matter of fact, just recently we have agreed that after each of us, the Canadian Coast Guard and the U.S. Coast Guard, examines our contingency plans, if we see any need for any modification to the Joint Plan, we are prepared to sit down and discuss it.

And Senator, I might just add while we have an opportunity, because I mentioned the importance of exercises, this is one area where improved funding to the Coast Guard would help, because in my judgment nothing is more important for enhancing our capability to deal with a major incident of pollution, be it oil or hazardous materials, than exercising the plans that we have in place, to identify where the problems exist and to deal with them.

We have had recently some very, very good and productive exercises. One was in your State, in Milwaukee, where this past spring the Region V Regional Response Team coordinated an exercise which involved not only the EPA and the Coast Guard, but also other Federal agencies and the State of Wisconsin and the City of Milwaukee. The scenario involved the derailment of a tank car on a bridge going across the Milwaukee River, and it tested all aspects of the Government's—and I use "Government" as including all levels of Government—response capability.

Yes, we found where there were some weaknesses, and we are setting about to do something about it. But it also got people in the same room and talking to each other to the point where they can identify what needs to be done and what would be done in the event of a serious problem. And I certainly would support any improvement in our funding situation which would allow us to do more in terms of exercising our plans.

Senator KOHL. Just one final question to you, Admiral. Hasn't the Coast Guard budget over the last several years gone up?

Admiral APPELBAUM. Not in terms of——

Senator KOHL. The total budget, the total budget.

Admiral APPELBAUM. Oh, yes.

Senator KOHL. Who decides how to spend that?

Admiral APPELBAUM. Well, to a certain extent, that is greatly influenced by Congress because Congress has earmarked certain funding for specific missions, and I am thinking primarily of the drug mission. So to a certain extent that has limited our flexibility.

Senator KOHL. But it's not as though the Coast Guard's budget has gone down in the last several years; in contrast to other budgets which have gone down in this country, the Coast Guard budget has not gone down.

Admiral APPELBAUM. For those of us on the street, Senator, it appears to have gone down because so much of what the budget is directed to are really fixed costs, fixed costs which don't provide flexibility in terms of operating funds. Where we are hurting is in terms of our operating funds.

Senator KOHL. Thank you.

One question for Mr. Tennyson. You said several times in your testimony, sir, that research on oceanic oil spills is applicable to the Great Lakes except for the research on chemical dispersants. But Mr. Hales from the State of Michigan DNR has told us that fresh water concerns are very different from those of saltwater concerns—you've got to protect drinking water intakes; you have very swift currents in the connecting channels; you have smaller bodies of water with no access to a larger sea for dispersal; you have a very high concentration of manufacturing facilities close to the Great Lakes shores, and the associated storage and transport of a variety of hazardous chemical and petroleum products.

In other words, it seems to me that the conditions are considerably different and in your testimony, I didn't get the feeling that there was a recognition of all those differences in terms of approach.

Mr. **Tennyson**. For a major spill, Senator, I believe that the same problems and concerns that would affect an On-Scene Coordinator for an oceanic spill would be there for the Great Lakes situation.

You are quite correct in the assessment of high currents which don't normally exist in the oceanic situation although they do in near-shore situations. Beachline cleanup is one of our major concerns I didn't get into. But near-shore and beachline cleanup techniques are very much the same, I would think, between one and another specific to the oil type and to the beach type that you are trying to treat.

With regard to the chemicals I mentioned earlier, we have no reason to believe at this point that for the nondispersant chemicals which we have tested and evaluated and continue to work with, that their success would not be exactly the same in the larger bodies of water and the Great Lakes. I'm not talking about near-shore or river-type situations.

With respect to dispersants, again, dispersants have not been routinely effective in the saltwater environment, and we find from laboratory tests that they are about one-third as effective in fresh water.

The concerns that I would have, being an ex-Coast Guardsman and an ex-On-Scene-Coordinator back before there was such a term—is that the same problems for a major response, that is trying to get the proper amount of equipment, people and logistical support to the scene within that critical first few hours are precisely the same; the operational concerns are very much the same.

With respect to, high currents, we have ways of dealing with high currents that are above the knot, half-knot, and three-quarters of a knot upper limit, not in containment booming but by diversion booming, where you direct the oil, kind of glance it off the boom into a quieter area.

But I believe that in terms of major spill response, the same concerns and the same problems would arise whether it be salt or fresh water.

Senator **Kohl**. Thank you.

Senator **Levin**. Thank you, Senator Kohl.

One more question for EPA, and then I have a few for the Coast Guard and for Interior.

The EPA task force a year ago recommended new regs to strengthen the prevention program, and I understand, and you testified this morning, I believe, that those regs are in draft form now.

Why does it take so long? It has been 16 months now since that report came out. When will these regs be issued?

Mr. **Fields**. Okay. To answer your first question, why does it take so long, that is a source of frustration for those of us who work within the bureaucracy also. We have to go through elaborate processes to get regulations published, unfortunately.

The task force report was approved July 1st of last year. The work group began on September 8th, 1988. We have had what we call an EPA work group closure. That means all the offices in EPA have now met, and we have agreed about the content of those regs. We had that meeting on August the 28th, last week.

We are now in the process of finalizing that proposal, and we are incorporating comments from all those various Agency offices. The next step is to conduct what we call Agency "red border review" and OMB review. That is, we are now preparing the package to get it ready to send it over for Agency assistant administrator-level review and OMB review.

It is expected that we can get that reg out, based on that process that we have to go through and that schedule, sometime late this year or early 1990. It is a frustrating process, but there are a lot of offices that need to be coordinated with, regional offices, headquarters offices, legal issues that need to be dealt with, et cetera.

We believe we have put together a package which has a lot of consensus within the Agency, within the other Federal agencies as well as by the regulated community; but it just takes a long time.

Senator LEVIN. What is the time line now? Give us an estimate for when those regs would be issued—give us a guesstimate.

Mr. FIELDS. A good conservative guesstimate would be February of 1990. The initial schedule was October, and that got slipped.

Senator LEVIN. All right, so February of next year?

Mr. FIELDS. Yes.

Senator LEVIN. You have testified, Admiral, about some of the reductions in your budget for enforcement, environmental protection and marine safety. Let me give you some of the figures for some of those cuts, because they have indeed been real.

We've seen a 50 percent cut in dollars for marine safety and environmental protection programs from fiscal year 1980 to fiscal year 1990. We have seen a 30 percent cut in the Great Lakes, which is your Ninth District, marine safety personnel. We have seen a drop in vessel and port facility inspections. We have seen a termination of aerial surveillance programs and routine harbor patrols to find and trace spills.

At the same time that we have seen that drop—and many would argue because of it—we have seen in the last 3 years that spills in U.S. waters have doubled. And when I say "because of it," I am also including the EPA inspection program. The drop in our prevention programs has been fairly dramatic, and the increase in spills has been dramatic. You have taken some hits, and one of the reasons is the one you just gave, I believe, which was the greater emphasis on the drug interdiction program. I believe that is your testimony this morning; is that correct?

Admiral APPELBAUM. Yes, sir. There has been a greater percentage of the budget devoted toward the drug mission; the greater slice of the pie, if you will, Senator.

Senator LEVIN. It really raises a very significant point here. When we increase the resources to fight the drug war, which we have got to do, those resources have got to come from somewhere; it is not painless. There is sacrifice involved. We are either going to cut other programs, or we are going to raise revenues; it is one or the other. In your case, we have cut programs. They are not painless cuts. We pay a terrific price in what we've done. If we take money away from Coast Guard inspection programs in the Great Lakes and other places, we are going to increase the number of spills in the Great Lakes and the risk of major spills—that's the price.

And what troubles me, I must say, about some of the rhetoric relative to drugs—and I don't want to at all get partisan and change the direction of this morning's hearing—but what troubles me about some of the rhetoric relative to the drug program is that we can increase money for the drug fight without paying a price, that it can be done painlessly—and it can't be. We are going to pay a price for it one way or another; it is either going to be some kind of a greater risk in a program such as the one which you operate to reduce the chance of oil spills in the Great Lakes, or it is going to be somewhere else.

I happen to find that risk intolerable. That is my own belief. I am unwilling to accept a greater number of spills in the greatest body of fresh water in this world and the risk of even a greater number of spills. That is not a price that I am willing to pay. I am either going to have to find those revenues somewhere else or create more revenues—it is one or the other, because I am not willing to accept that.

But we should not kid ourselves that we can fight this drug fight painlessly without cutting other programs. And the Great Lakes example is kind of eloquent, I think, in a way. It has happened in the last few years, and it has been relatively silent, in a sense—these reductions in your environmental protection programs and in your inspections and your safety personnel, and the greater emphasis on drugs. I think the public, by the way, will support more money for drugs. I have no doubt about that, and I do. But this is not a place I am willing to take money from, and we are going to have to try to restore some of these funds. It is too big a risk to too precious an asset of this country. Nor do I think the public is willing to accept this if they really know about it.

The problem is that the spotlight hasn't really been on where these cuts have come to increase the drug interdiction in the Coast Guard budget. There hasn't been enough of a spotlight on it. We just simply said, well, take it from a lower-priority program and put it into the drug fight, without identifying, wait a minute, what is that lower-priority program, and is it really an acceptable risk that we are willing to take.

Now let me go back more directly to this morning's testimony. Do you know in the 1991 budget what the request of the Coast Guard is for your environmental protection programs, your marine safety programs, and your inspection programs and so forth? Do you know offhand what that is?

Admiral APPELBAUM. I'm sorry, Senator, I don't have that in front of me.

Senator LEVIN. Can you submit that to us for the record?

Admiral APPELBAUM. Certainly.

Senator LEVIN. Let me ask you, Mr. Tennyson, a couple of questions. You have talked about research and development at some length in your testimony to improve our spill response technology. The Government has, as I understand, invested in previous years—before some recent cuts in research and development funding—invested in technology for improving our response to spills with some success. I think we have helped through Federal dollars to improve the booms, to improve the skirts, I believe, that are used, so that we have proven that an investment of Federal dollars in the technology of the response to these spills is a good investment and is a useful investment; is that correct? I should not put words in your mouth, but would you agree with that?

Mr. TENNYSON. Yes, Mr. Chairman, I would agree with you. I think in the written testimony, we have highlighted some 12 or so accomplishments over the last several years as a result of the much-reduced funding levels that we have seen.

The Minerals Management Service and Environment Canada to our knowledge are the only active research organizations funding research at this point, and the loss of dollars has significantly slowed down the progress that we have made in the past when in fact we were cooperating with the Coast Guard, the Navy and EPA as well.

Senator LEVIN. One of the charts [1] that we have handed out shows a 10-year decline in spill research programs by the Coast Guard and the EPA. The Coast Guard's effort has dropped from $4.6 million annually to $200,000. The EPA has gone from $720,000, I believe, Mr. Fields, to zero last year.

And I am wondering—I can probably ask each of you—do you find these cuts make sense in terms of what we have got to do for spills? Mr. Fields, would you agree that we've got to reverse those kinds of cuts if we are going to make advances in technology to address these spills?

Mr. FIELDS. Yes. It is obviously clear, and as Mr. Tennyson has said and as EPA Administrator Reilly indicated in his report to the President along with Secretary Skinner, we believe that the fact that we have not funded our research program has resulted in a lack of adequate technology to be able to respond to oil spills in this country.

We need to be improving the status of technology, and one of the major focuses of EPA's oil spill research program for 1990 and 1991 will be to start an active oil spill research program going again.

Senator LEVIN. During this period we have cut our research dollars despite proof that it is a wise investment and, during the same period, spills have doubled.

Mr. FIELDS. I agree.

Senator LEVIN. Okay. Admiral Appelbaum, would you agree that investment in technology to address spills when they occur is a wise investment?

Admiral APPELBAUM. Certainly, Senator. There are several issues with regard to the research and development program that the Coast Guard is interested in. We certainly need to establish a Government-wide oil and hazardous materials R&D coordinating body. And it would be the Coast Guard's position that for the maritime environment it would be appropriate for the Coast Guard to head up that particular body, to take individual organizations and bring them together in a direction which would improve the overall national posture.

Senator LEVIN. And back to you, Mr. Tennyson. If we made a reasonable investment in research now, could we expect some near-term successes in your opinion?

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[1] See p. 197.

Mr. **Tennyson**. In the research program that I submitted as testimony for the record, Mr. Chairman, we have identified some 11 initiatives that within the next several years we believe would significantly increase the overall capability—and that is across-the-board from detection, containment, recovery, disposal, and other forms of response.

The program was designed to reflect a $2 million base over the next several years. There are certainly a number of other initiatives that I would like to see undergone on a cooperative base with the Coast Guard.

I might add that there has been and continues to be a coordinating effort on a technical level between EPA, Coast Guard, Navy, Environment Canada and ourselves, and in fact that particular group is meeting again next Monday.

Senator **Levin**. Am I correct that when there is a spill, typically only about 20 percent of the oil is recovered in a major spill?

Mr. **Tennyson**. The numbers that I have for ocean spills, on the recovery from the majority of spills, are well under 10 percent; the majority are well under one percent recovery.

Senator **Levin**. So when we talk about technology, improving recovery is one of the areas. We also want to improve prevention—I gather that is critical.

Mr. **Tennyson**. Yes, sir, it is.

Senator **Levin**. And there are a number of others. When we talk about technology, are we also talking about increasing the amount of oil that we are able to recover? Is that a major area of gain that we can hope to see?

Mr. **Tennyson**. If you look at the mechanical recovery, the conventional boom and skimmer approach, I think the numbers are fairly clear in the performance of a large skimming system, a 600-foot boom with a skimmer behind it; you tow it in a U-configuration called a catenary, and the width of the catenary is about one-third the length of the boom, so you have a 200-foot swath width to go through the slick. You can tow it at one-half to three-quarters of a knot, so assuming that you can operate on a 10-hour day and that you recover every drop of oil that the boom-and-skimmer system encounters, then you could hopefully skim six-tenths of a square mile per system.

If you make that a much better system, you are still limited to that very small area. We are looking primarily at in situ burning and non-dispersant chemicals, and other techniques which will allow a much larger area coverage for the dollar involved. A 100-square-mile slick, if you can skim six-tenths of a mile in a 10-hour day, with no down time for weather or mechanical problems or transshipping, is a certain handicap.

I think that not only is there room for the technology to advance, there is certainly room for development of a rapid strike response with sufficient equipment available. That does not require new technologies. That requires more dollars.

Senator **Levin**. There are some unique aspects to the Great Lakes, as Senator Kohl has emphasized—the fast-flowing river issue with the connecting channels, the drinking water supply issue. Is the Interior Department prepared to implement research programs which focus on those unique aspects of the fresh water that we have in the Great Lakes?

Mr. **Tennyson**. We are looking, Mr. Chairman, at rapid-current containment. In fact, one of the projects that we are currently cofunding with Canada addresses an entirely new way to contain oil using high-pressure water injected over the water surface, which creates a high-pressure wind. We have used that system in currents up to 3 knots. I have mentioned earlier that normal containment booms fail at half-to-three-quarters of a knot relative current.

We have also looked at using booms on a diagonal across the high-current areas, and we have had some success up to a knot and a half.

I don't believe there is much future in looking at conventional types of booms for high-current areas. There have to be new technologies developed for that.

Senator **Levin**. But you are going to look into those technologies as part of an expanded research program; is it your plan to do that?

Mr. **Tennyson**. For the high-current areas, yes; we have been involved for the last several years.

Senator **Levin**. All right. Ironically, just a few weeks before the Valdez spill, the EPA mothballed a unique facility which had been used to test spill response technology. First let me ask you, Mr. Tennyson, how important was that EPA facility?

Mr. **Tennyson**. Mr. Chairman, probably 95 percent of the performance data we have for all offshore and in-shore—and probably 100 percent for the near-shore equipment--have come from tests at the OHMSETT facility, that research facility you are talking about.

Senator **Levin**. Does that mean it was very important?

Mr. **Tennyson**. It is extremely important. In fact we, in conjunction with Canada, have looked at alternative facilities on the North American continent. We have looked at some 47 different facilities; there are none that are comparable to OHMSETT. And the kinds of testing that we routinely did there, the standard test protocols conducted there, cannot be conducted at any other facility.

Senator **Levin**. Let me ask you, Mr. Fields, why was that facility closed?

Mr. **Fields**. It was closed at the time because of lack of use. The demand by the various agencies, programs within EPA and other Federal agencies was not great enough in view of the research office of EPA to justify continuing its use. The research program budget has gotten down to $300,000 a year from being at several millions of dollars a year. It was just not a cost-effective decision, they felt, to continue to operate that facility——

Senator **Levin**. Given the cut in your research dollars?

Mr. **Fields**. Given the cut in the research dollars.

Senator **Levin**. Do you really mean it wasn't cost-effective, or that just given the dramatic reduction in your research dollars you couldn't afford to keep it open?

Mr. **Fields**. It was not cost-effective based on the demand, but also we could not justify it based on the cut in the budget.

I do want to indicate, though, just to add to what Mr. Tennyson said, that we do have access to that facility. EPA turned that facility back to the Navy, which owned it. It is available through a Government ownership contract arrangement—that is, EPA and other Federal agencies could enter into contract arrangements to still do research at the OHMSETT facility.

Senator **Levin**. Is that facility on-line now?

Mr. **Fields**. It is not on-line, but it could be made on-line.

Senator **Levin**. Mr. Tennyson, do you have any comments on that?

Mr. **Tennyson**. Yes, sir. One of the projects again identified in this plan submitted for the record was the reactivation of the facility. It has been inactive since 1986 in terms of research. The present status is in question. The Navy has alternate uses for the site and is actively considering destruction of the facility.

Senator **Levin**. In other words, you don't have access to it now?

Mr. **Tennyson**. No, sir. We have not had access to it for 2 years.

Senator **Levin**. How important again is that access just in a word? Is it very important——

Mr. **Tennyson**. Critical, I would say, critical.

Senator **Levin**. Well, there seems to be a little difference on this point.

Mr. **Fields**. I have talked to John Skinner and Erich Bretthauer, the head of the Research Office at EPA—I talked to them as late as yesterday, and they indicated that——

Senator **Levin**. You knew I might ask this question, right?

Mr. **Fields** [continuing]. Well, yes—they indicated that they are looking at maybe trying to enter into some sort of arrangement to try to re-acquire access to OHMSETT. So I think we need to——

Senator **Levin**. Well, would you join with the Interior Department in seeing to it or asking the Navy not to destroy it?

Mr. **Fields**. Well, I can't publicly make a commitment to you right now, Senator, about that. I will go back and talk to our people at EPA——

Senator **Levin**. Would you let us know what the EPA's position will be on that?

Mr. **Fields**. Sure.

Mr. **Tennyson**. We have a letter, by the way, Mr. Chairman, from the Coast Guard also supporting the reactivation of the facility.[1]

Senator **Levin**. All right. I'm just going to ask one more question and then I'll go back to Senator Kohl.

The question of surreptitious dumping of toxic wastes by foreign flag vessels in order to avoid the cost of proper dumping—we have heard from a number of witnesses that there is real belief that there is some surreptitious dumping going on by foreign flag vessels.

First, Admiral, have you heard about that, do you believe it—and what can be done about it if it is true?

Admiral **Appelbaum**. The potential, of course, is always there.

Senator **Levin**. Do you believe it is happening now?

Admiral **Appelbaum**. I have no information to suggest that it is happening now or that it would happen in the future.

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[1] See p. 213.

Understand——

Senator **Levin**. Well, let me ask you this: Do you believe it is happening?

Admiral **Appelbaum**. No, I do not.

Senator **Levin**. Okay. Mr. Fields?

Mr. **Fields**. I'm sorry, sir. I was writing myself a note about your OHMSETT question, and I missed your question.

Senator **Levin**. Do you believe there is surreptitious dumping of toxic materials going on by foreign flag vessels in the Great Lakes?

Mr. **Fields**. I don't have any information to indicate that, sir.

Senator **Levin**. All right.

Senator Kohl?

Senator **Kohl**. I have no further questions, Mr. Chairman.

Senator **Levin**. Just one additional question of you, Admiral, having to do with the navigational rules.

I gather Canada has issued a number of certificates, recently somewhat reduced, to allow for piloting in the Great Lakes of boats with less restrictions than we think are appropriate. Is that true?

Admiral **Appelbaum**. Are you referring to the so-called B Certificate?

Senator **Levin**. Yes.

Admiral **Appelbaum**. Yes, Senator, the Canadian Government does issue what is known as "B Certificates" to foreign masters to allow them to navigate without pilots in the undesignated waters of the Great Lakes. I believe——

Senator **Levin**. We don't allow that, I take it, is that correct?

Admiral **Appelbaum**. The United States does not issue B Certificates or anything analogous to it.

Senator **Levin**. And are we trying to get Canada to reduce that?

Admiral **Appelbaum**. Right now, Senator, I understand that there are roughly 26 or so B Certificates that have been issued and that are operating. We have had discussions with Canada with a view toward having them tighten up their criteria for issuing a B Certificate. Basically all that is required is several trips—three, I believe—on the Great Lakes, ability to speak English, and then taking an oral exam.

Those criteria are far less restrictive than the criteria, for example, for a U.S. master or a U.S. pilot.

Senator **Levin**. I gather there is no reason Canada could not return to a larger number of those certificates if it decided to, right—I mean, there is no agreement that they would not do so?

Admiral **Appelbaum**. No, there is no agreement that they would not do so. My sense is from discussions with the Canadian Coast Guard that they would not likely do so.

Senator **Levin**. Do you know, though, whether there are negotiations going on now to increase the qualifications for those B Certificates?

Admiral **Appelbaum**. Yes, sir. The Coast Guard has had discussions with Canadian officials on that subject with a view toward encouraging Canada to tighten up requirements for issuance of a B Certificate.

Senator **Levin**. Finally, I gather that the Coast Guard is allowed to waive requirements that ships use Great Lakes pilots in waters designated as particularly hazardous and that these waivers are granted if a pilot cannot be located within 6 hours. Why should these waivers be granted in that short period of time? What is magic about 6 hours? If there is a risk, why not require the pilot, period? They are available, aren't they?

Admiral **Appelbaum**. I think the use of the word "waiver" is unfortunate. I would prefer not to couch it in those terms, Senator.

I have a responsibility for administering the Pilotage Act. My job in that context is to set the rates for the pilots and to provide pilots when needed. And of course, we have certain requirements for ships to carry pilots. If a circumstance arises where a pilot for one reason or another cannot be provided—and we have had this occur in the last 18 months—where that occurs, there is an option for allowing the ship to sail without a pilot. That decision, as to whether to allow a ship to sail without a pilot, is one which, at the first level, is done by the respective captains of the port, subject to my review. And there are many reasons for allowing a ship to sail—for example, if serious weather conditions were a factor, if there were overwhelming economic reasons for allowing it to go—but it would still be a matter of safety analysis for the captain of the port and for me to determine whether it is appropriate for a ship to sail without a pilot.

Senator **Levin**. In other words, it is not automatic at all that even after 6 hours you are going to grant a waiver?

Admiral **Appelbaum**. We are not going to grant a waiver in that technical sense, Senator. We would look at the circumstances——

Senator **Levin**. Whatever the word is, it is not automatic after 6 hours.

Admiral **Appelbaum**. Oh, no, by no means is it automatic. We are going to examine the circumstances and determine whether it is safe and appropriate to allow the ship to sail without a pilot.

Senator **Levin**. Let me thank this panel. The importance of prevention, the cost-effectiveness of prevention, is overwhelmingly obvious, I would think. The reduction in dollars spent for prevention is clear and also dramatic. Your testimony, I think, has highlighted that, among other things. We have gotten into a whole bunch of areas, but surely that comes out very clearly, that we have seen an increase in the number of spills, a decline in the number of dollars that are invested in prevention and in research, and that there is a relationship between the two. We appreciate very much your testimony, and you are all excused. There may be some additional questions, again, for the record.

Thank you all very much.

Mr. **Fields**. Thank you, Senator.

Mr. **Tennyson**. Thank you, Mr. Chairman.

Admiral **Appelbaum**. Thank you, Senator.

Senator **Levin**. Our next panel is made up of Langdon Marsh, who is the Executive Deputy Commissioner of the New York State Department of Environmental Conservation; Walter Lyon, who is an Environmental Engineering Consultant and Adjunct Professor of Systems Engineering at the University of Pennsylvania; Capt. Thomas Schnell, who is a Great Lakes pilot; and David Usher, who is a member of the Board of Directors of the Spill Control Association of America, and President of the Marine Pollution Control Corporation.

We appreciate all of you gentlemen being with us this morning, and we will call you on the order that you are on the agenda.

First, Mr. Marsh, we will call on you. Again, you are the Executive Deputy Commissioner of the New York State Department of Environmental Conservation.

Thank you.

TESTIMONY OF LANGDON MARSH, EXECUTIVE DEPUTY COMMISSIONER, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,[1] ACCOMPANIED BY THOMAS E. QUINN, DIRECTOR, NEW YORK STATE SPILL RESPONSE PROGRAM

Mr. MARSH. Thank you, Senator.

I am very pleased to be here on behalf of Commissioner Tom Jorling to testify on this very important subject. With me today is Thomas Quinn, who is the Director of our Spill Response Program in New York. Mr. Quinn is, I think, a good example of the dedication of the people who do this work all over the country. Mr. Quinn contributed mightily to the preparation of this testimony while on vacation on the coast, and I think it is an example of how much effort is put into spill response and prevention by employees of both the State and Federal Government.

Senator LEVIN. We welcome both of you. Thank you.

Mr. MARSH. They are very dedicated and very overworked.

Senator LEVIN. Does that explain his gray hair?

Mr. MARSH. Probably—some of it.

New York has two coastlines on the Great Lakes, Lakes Erie and Ontario, and shorelines on the connecting waters. Your statement and other testimony has indicated the tremendous importance of the Great Lakes in terms of both public water supplies, fishery resources, and so on. That is all outlined in my testimony, and I will not repeat it.

I would like to turn directly to the questions that you asked of us, the first one having to do with the procedures for handling spills on the Great Lakes. As has been testified to, those spills are handled by the United States and Canadian Coast Guards upon notification of the National Response Centers or local detachments, and the Coast Guard has on-scene response capability throughout the Basin.

That activity takes place under the authority and general direction of the national contingency plan and a host of local contingency plans, which in theory make up a good system, but in practice there are many critical delays. Contingency plans are woefully outdated. As with most planning efforts, when the possibility of an event appears remote, preparedness loses to other pressing priorities, and we still suffer from an "It won't happen here" mentality until jolted into reality by a Valdez-type tragedy.

So Federal and State agencies need additional staff to prepare and oversee current and adequate, workable and practical contingency plans, to rehearse response to a variety of scenarios, and to supervise or test the actual deployment of equipment.

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[1] See p. 134 for Mr. Marsh's prepared statement.

Both Federal and State agencies rely on contractors to provide most of their available pollution response capability, and this is a good decision but it does have its weaknesses. Contractors only have the minimum equipment necessary to operate a business and not the amount needed to handle a major or several smaller, simultaneous spills. There is no Government or comprehensive industry inventory of where all such private equipment is at any given time, and all the equipment is not available to the Government when needed.

One promising addition to the Government/contractor relationship has been the oil spill cooperatives formed by the oil companies. These cooperatives do not compete with private contractors, but do provide early critical response to incidents. We want to talk about expanding those cooperatives.

The Coast Guard, we believe, is a motivated and effective presence when commanding spill response and cleanup efforts. However, the Coast Guard presence in pollution prevention and response has suffered noticeably, as you pointed out, from successive years of budget cuts. Stations have closed, detachments have been moved, strike teams deactivated from the New York Metropolitan Area, and the strength diminished in the face of other pressing needs.

One very essential step that Congress can take is to assure that adequate resources, both personnel and material, are dedicated to carry out present and proposed pollution control mandates of the Coast Guard

I want to talk about, in final response to this question, two factors which limit the effectiveness of containment measures. One is human and the other is providential.

We can do much to increase the effectiveness of the human element by providing adequate equipment, trained personnel, improved communication, decisive and prompt command actions, faster staging and deployment of equipment, increased opportunities for drills and simulations, better planning, stronger and safer vessels, improved navigation and effective enforcement of laws and regulations. We need all of those things.

We have to do this in the face of not being able to control the exact conditions under which spills occur—and darkness, wind, winter, inaccessible locations, weekends and holidays, and a host of other intangibles will always frustrate and complicate efforts, so we have to be as prepared as possible.

Your second question asked us to contrast spill response in the Great Lakes with spill response in the ocean. There are similar natural characteristics in both environments, and that results in similar response in both the Great Lakes and the ocean. My testimony lists some similarities and some differences.

But I would emphasize that the Great Lakes fresh water environment is more fragile and more vulnerable than the ocean. Humans are also much more directly dependent on the Great Lakes than on the ocean. In the lakes, there is also direct use for industry and agriculture that does not occur with the ocean waters. So we need some additional protections, and I believe we need some incentives to prevent oil spills which are vitally important on the Great Lakes as on the oceans.

Measures should be at least as stringent as those proposed in pending legislation for coastal waters, and they include obviously a liability regime imposing a high standard of care—I have attached some testimony of Commissioner Jorling earlier this summer that goes into that in more detail. We also need training and certification of navigators and operators and technical standards for both equipment and vessels.

Now, in response to your third question which requests whether a spill response center in the New York Metropolitan Area could service all the Great Lakes, or whether additional centers will be needed, we strongly support the industry announcement in June to create a petroleum industry response organization with five regional centers, and we think that the New York Metropolitan Area is an appropriate location for one such center; but we believe that at least one more response center, preferably two, is needed in the Great Lakes as well. The Great Lakes are the United States' "fourth coast," with 15,000 miles of shoreline in the United States and Canada, and the sheer size of the Great Lakes and their great distance from each other and from other proposed response centers argues for locating at least one center there.

In addition, there are a number of organizations in the Great Lakes that are involved in pollution response—governmental and private organizations as well as public authorities like the St. Lawrence Seaway Authority. Within all of these organizations are people who are very knowledgeable about spill prevention and response, but there needs to be much done to integrate this knowledge into a more effective regional plan for response to major spills that would support the kind of response center that ought to be established.

There is an organizational framework that exists to do this, to identify necessary elements of planning, communications, operations and response, but what is needed at both the national and State Government levels are people working full-time on these plans, keeping them updated, conducting training, and informing people of the plans and how they work. Most Government agencies simply do not have sufficient personnel to devote to these issues, or fail to see the need to do so.

Prevention of spills is another accompaniment to a spill response program that is an absolute necessity, but we must, as you pointed out, rely on the Coast Guard to inspect vessels and their pollution control planning, and we see a lack of personnel that is hampering these prevention-directed programs. We need rigorous and frequent inspections, but there just aren't personnel to perform them.

Facility operators need to be qualified; navigators need to be certified as capable of piloting, but there just are not personnel to do the testing. Vessel movements need to be tracked, and vessel transfers of petroleum closely monitored, but there just aren't enough people for those tasks, either.

So the best plans are for naught if provision is not made to carry them out. Some of the very good legislative proposals which are before Congress now will be helpful, but unless they include specific appropriations and mechanisms to implement, their intent and purposes will not be realized.

I would like to thank you for the opportunity to give this testimony and will be available for questions.

Senator LEVIN. Thank you, Mr. Marsh, very much for summarizing your statement. Your entire statement—and I believe there was a statement you made reference to which was attached to it—will be made part of the record.

Mr. MARSH. Thank you.

Senator LEVIN. Next, Walter Lyon, who is an Environmental Engineering Consultant and Professor of Systems Engineering at the University of Pennsylvania.

Professor Lyon?

TESTIMONY OF WALTER A. LYON, ENVIRONMENTAL ENGINEERING CONSULTANT AND ADJUNCT PROFESSOR OF SYSTEMS ENGINEERING, UNIVERSITY OF PENNSYLVANIA[1]

Mr. LYON. Thank you, Mr. Chairman. I, too, will summarize my statement.

Mr. Chairman, I appreciate the opportunity to appear before you today in order to highlight the serious concern that we all share about the potential for a disastrous spill of hazardous chemicals or oil on the Great Lakes.

My testimony is going to focus on the area of prevention. In the hearing so far, there has been a lot of discussion of cleanup efforts. I will focus on prevention and raise 4 questions and try to answer them briefly: Why should we be concerned? What should we do about the problem? What is being done to prevent spills? And what needs to be done?

Before I answer those questions, I would like to tell you very briefly how I came to be concerned about this issue. In connection with my State work since 1962, I served on various committees and boards of the International Joint Commission, or IJC for short, which by treaty between the United States and Canada have responsibility to investigate and report on the pollution problems of the Great Lakes. My work with the IJC has led me to an appreciation of the severity of the problem which is before you today.

For a number of years, the IJC has been concerned with preventing a spill disaster on the Great Lakes. It is important to reiterate here that my observations and my recommendations are my own and not those of the IJC.

First, why should we be concerned? Well, as you have said in your opening statement, the Great Lakes are the drinking water of at least 25 million and probably more, closer to 30 million people. All major cities along the Lakes in Canada and the United States such as Detroit, Toronto, Chicago, Milwaukee, Cleveland, and so on, use Great Lakes water for drinking purposes.

Then, the Great Lakes are traps or "bathtubs" as someone called them—everything that you put into them can stay in for a long, long time. The "residence time," as a hydrologist would call it, of Lake Superior is 191 years; Lake Michigan, 99 years; Lake Huron, 22 years, and so on.

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[1] See p. 155 for Mr. Lyon's prepared statement.

My second major concern is that you can't see chemical pollutants. In the past, the emphasis on controlling pollution has related largely to visible problems, such as fish kills, oil spills and algae formed by nutrients. Chemical pollution is often not visible to the eye, and often you cannot smell it or in any other way detect it. It can only be detected by sensitive laboratory instrumentation.

The potential for spills is growing dramatically. The volume of chemicals being transported is increasing because of the growing volume of chemicals that are being manufactured, and perhaps most importantly, because environmental legislation such as RCRA and Superfund is putting more hazardous waste onto the Great Lakes Basin transportation system than ever before.

For example, Pennsylvania's hazardous waste used to go to the local dump a mile or 2 away, maybe 5 miles. Today it is shipped to 26 States. I estimate that on the order of 3,000 spills occur in the Great Lakes Basin every year—and here, I talk about the entire Basin.

The transportation system which carries these hazardous materials is not safe enough. The transportation system which crisscrosses the Great Lakes Basin—and I attached copies of maps showing that—with highways, rail lines, pipeline, and waterways is not capable of transporting hazardous substances safely.

I say this for several reasons. The volume of shipments of hazardous materials has increased; traffic has increased; and, as you have already heard, Canadian pilotage requirements have been relaxed. The system was never designed for the safe transport of hazardous waste.

Loading and unloading practices create serious hazards. For example, an open-water transfer of oil and chemicals from vessels to lighters is being conducted in places such as the Calumet Harbor within a few miles of the waterworks intakes of the cities of Hammond, Indiana and Chicago, Illinois.

Just a week or 2 ago, I had a call from a tugboat captain, and I share with you his very deep concern about the fact that this is going on within a few miles of waterworks intakes.

The potential for surreptitious spills—and you have touched on this already—is increasing. The tough standards imposed by RCRA and Superfund have dramatically raised the cost of managing hazardous waste, and consequently, the temptation to make a fast buck by illegally disposing of them surreptitiously has skyrocketed. Anecdotal testimony by pilots tells us that foreign flag vessels entering the Great Lakes are dumping hazardous waste without our knowledge.

What do we know about the problem? We have enough general information to be deeply concerned and to take some common sense corrective steps to prevent spills immediately. We also know that spills can have a far greater impact than point source discharges. For example, two Canadian styrene spills in the St. Clair River were found to be equivalent to 1,428 and 58 years, respectively, of the permitted point source discharges.

We know that human factors such as lack of training, experience, fatigue, boredom, substance abuse, alcoholism, inadequate supervision and excessive automation are major causes of spills. My committee in the IJC held several workshops on this subject and has compiled a report that, unfortunately, is out-of-print, but you may wish to make it part of your record because it talks about some of the human factors that may contribute to the spill problem.

We don't know enough specifics to take the most cost-effective steps over the long term. We urgently need better data. We had a contract to look at United States and Canadian spill reporting systems and found them to be so fragmented, so uncoordinated and so incomplete as to provide us with no meaningful data.

In order to deal with the complex problem of preventing spills, it is essential that we have more meaningful information about the kinds of spills that are occurring and why and where they are occurring.

What is being done to prevent spills? Not enough. Nearly all our contingency planning is directed to the cleanup of spills after they occur, and most of that relates to oil spills.

What needs to be done to prevent spills? I recommend, number one, that Congress pass legislation that would create a National Great Lakes Spill Prevention Program in EPA which is composed of three major elements: one, funding and authority for an office to coordinate Federal agencies in the United States Government effort of implementing the program, to provide financial assistance to Federal, State and local agencies to carry out the program and to universities and private industry for research and training of specialists in the science of spill prevention.

Second, we should authorize and implement positive command and control systems covering all shipments of toxic chemicals, whether by air, rail, pipeline, vessel, or by truck. Using modern satellite systems and modern radar systems, that kind of technology should be no particular problem. This element of the program should also include extension of pilotage requirements to the entire Great Lakes system and designating safety zones around the drinking water intakes of our major cities.

Third, we should implement a program designed to prevent surreptitious spills using appropriate investigative, inspection and enforcement techniques. I have attached to my testimony some more specific recommendations that we have made to the IJC in that connection.

My second major category of recommendations relates to the U.S.-Canadian problem. Congress should urge the Administration to amend the Great Lakes Water Quality Agreement between Canada and the U.S. to provide funds for the following items: one, assign the International Joint Commission responsibility for installing and operating a Great Lakes spill data system and preparing an annual report and recommendations regarding the prevention of spills in the Great Lakes; two, amend the terms of reference for joint institutions in the agreement to create a transportation safety board whose function is to make recommendations to the IJC regarding two items. One is the joint regulation and management of all forms of transportation in the Great Lakes Basin, which will attain a goal of reducing the number of spills and surreptitious discharges in the Basin by 50 percent each year beginning in 1991; second, to study joint institutions, including the need for a Great Lakes Binational Coast Guard to manage navigation and pilotage.

There is no reason why the IJC cannot assume that task, but to assume it, it needs better support in terms of staffing and budget. What I have proposed here is only an interim and partial solution, a bandaid, if you will. To address this problem more comprehensively requires more in-depth attention by the Congress and the Canadian Parliament in order to answer fundamental questions in the area of transportation and environmental policy. These questions are likely to have significant economic and social consequences for both countries. The leadership of both countries will need to jointly formulate them and create the joint institutions which can answer them.

Thank you.

Senator LEVIN. Thank you, Professor Lyon.

Our next witness is Captain Schnell. We are appreciative of your being here, Captain.

TESTIMONY OF CAPT. THOMAS J. SCHNELL, GREAT LAKES PILOT, DISTRICT 2,[1] ACCOMPANIED BY CAPT. WILLIAM YAAKE, REGIONAL REPRESENTATIVE, AMERICAN PILOTS ASSOCIATION

Captain SCHNELL. Thank you, Senator Levin.

I would also like my entire written statement and supplemental information included in the Committee record.

Senator LEVIN. It will be made a part of the record.

Captain SCHNELL. Also, to my right is Captain William Yaake, who is one of my colleagues, who will help me answer any questions that might be presented. He is also Regional Representative of the American Pilots Association.

Senator LEVIN. We welcome both of you.

Captain SCHNELL. Mandatory pilotage in confined and restricted waters such as harbors, rivers and in narrow channels has been one of the greatest safety and environmental factors down through the ages concerning marine operations. Untold number of collisions, groundings and sinkings have been averted. Human life has also been preserved by the use of competent pilotage.

All maritime nations have pilotage laws affecting the waters within their boundaries. These laws are controlled and administered by both Federal and State Governments. In all cases, pilotage is regulated by a responsible authority.

When the St. Lawrence Seaway opened the Great Lakes to foreign ships in 1960, the safety of everyone and everything demanded that the ships be moved safely and efficiently. The United States and Canada, whose common border runs through the middle of four of the five Great Lakes States, made the logical and sensible response of requiring pilotage.

The commercial waterborne traffic that operates on the Great Lakes also shares these waters with tens of thousands of recreational boaters and shoreside homeowners. What must be considered when talking about the use and development of the Great

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[1] See p. 73 for Captain Schnell's prepared statement.

Lakes is that these waters are a national treasure and belong to no one—yet they do belong to all of us.

Any shipping accident on the Great Lakes is fraught with catastrophic injuries, and any relaxation to the system which sacrifices the safety factor in the name of economy is wrong and should not be tolerated. Remember, any savings to the system would be realized by the foreign ship owner, and any disaster would be realized by the United States and Canada.

In 1986, the Department of Transportation initiated a study of Great Lakes pilotage. This study is known as the Great Lakes Pilotage Study, with its final draft published December 7, 1988. There are serious deficiencies in this final draft regarding safe navigation, some of which could possibly result in a disaster similar to the *Exxon Valdez.*

The Government of Canada offers a Great Lakes navigation certificate, commonly referred to as the B Certificate, to foreign ship captains. A foreign ship captain who is a B Certificate holder is permitted to operate in the undesignated waters of the Great Lakes, which includes most ports, without an American or Canadian-registered pilot.

The process of obtaining a B Certificate is remarkably loose. The requirements are: three roundtrips on the Great Lakes within a 2-year period; speak adequate English; and pass an oral exam.

This clearly makes a mockery of the U.S. Coast Guard's equation of, for those of us who have invested years of training and practical experience to meet minimum requirements to obtain a first class pilot's license, not to mention the requirements to be come a U.S.-registered pilot, which are even more lengthy and stringent.

The explanation offered by the study for its support to the B Certificate is that this should reduce costs for the operators of the foreign flag ships using the Great Lakes. My beliefs are that we should not succumb to the special-interest groups whose motives are short-term monetary gains and risk the possible long-term cost to our environment.

There have been documented accidents involving the B Certificate. There have also been numerous reports from other marine ship officers stating their problems in communicating and observations of unsafe navigation by these B-holders.

However, the study states: "Available statistical evidence does not demonstrate any increased safety problems associated with the use of these certificates at present."

I feel that DOT would have a difficult time convincing the 27 surviving widows who were left by the sinking of the laker *Ceaderville* in the collision with the B Certificate saltwater vessel *Topsdalefjord* in the Straits of Mackinac in 1965.

I do find it difficult that the DOT considers the Straits of Mackinac as open waters. There are many reefs and shoals from one end of the Straits to the other. The marked channel at the Mackinac Bridge is less than a half-mile wide. There is more commercial traffic here than any other area of the Great Lakes. Six ferry operating companies carry thousands of passengers daily in the summer and fall.

Scores of comments have been made by environmentalists, fishermen, ferry operators and others, not the least of whom is the

U.S. Coast Guard's Captain of the Port from Saint Ignace, Michigan, which is the Straits of Mackinac, Commander R.B. Harden. His statement clearly suggests that the Straits of Mackinac be made designated waters.

The Great Lakes, with its Canadian B Certificate, makes available the only waters in the world that allow merchant vessels of any flag to transit its waters and to enter its ports unpiloted. Recently, strong shipping lobbies in Canada have proceeded to change pilotage laws and coasting laws. Newly-constructed Canadian oceangoing vessels involved in foreign trading coming into the Great Lakes are commonly referred to as a "salty laker." These vessels have routinely violated U.S. law by refusing to take pilots when required. The reason for this cavalier attitude is that the Department of Transportation study team has promised them legislative relief. I can provide this Committee with proof of these promises.

Another Canadian law recently passed allows a master who has a license under the British Commonwealth to sail the Great Lakes unpiloted after only 10 one-way trips. There have been 10 documented groundings since this law changed. One incident was when the captain of the tanker *Sybil W.* was making his first unpiloted trip. Each of these vessels have been tankers.

Please listen closely, as what I have to say upsets me greatly. When Mr. Samuel Skinner was questioned directly by 47 Congressmen and by Senator Strom Thurmond, his response on this issue was that these new Canadian changes pertain only in Canadian waters and are not valid in U.S. waters. The United States Coast Guard can supply documented evidence to the contrary. Several of these accidents have happened in the Detroit River, the Saint Mary's River, the Port of Oswego, New York, and in the Straits of Mackinac, which are all American waters.

There are other statements in these letters from Mr. Skinner and the Department of Transportation that I can also dispute or find misleading. I can also back these accusations.

In addition to the provisions that have been interpreted to justify the B Certificate, the pilotage act also contains a specific exemption to pilotage requirements, those being: a ship may move anywhere on the Great Lakes without a registered pilot or by any foreign master if that master is notified that a pilot is not readily available, not only in designated waters but undesignated waters as well. There is no apparent logic to this exemption. It is totally unsafe to move any vessel without a pilot under any circumstances unless the safety of the vessel is at stake.

The only rational response to a situation where a pilot is not readily available is to have the vessel wait until a pilot is available.

In conclusion, the Great Lakes pilotage study took 18 months to complete its final report; however, it is still ongoing and seriously flawed. The study team has totally ignored the input of pilots and other professional seafarers. Our expertise concerning navigation would prove invaluable, and our safety record is nearly flawless.

B Certificates and waivers both permit foreign ships to move on the Great Lakes unpiloted. This should not be acceptable.

For Secretary Skinner to announce on one hand that he recommends to strengthen the licensing and manning requirements for

American flag ships, his other hand is supporting the relaxation of requirements for foreign flag ships operating on the Great Lakes.

I recommend that the United States designate the Straits of Mackinac and all of the American ports on the Great Lakes as pilotage waters.

The waiver provisions recommended by the study team should not be considered an acceptable alternative to pilotage. Pilotage organizations should be allowed adequate rates to support and recruit the number of pilots necessary to properly service vessels calling on the Great Lakes. It is obvious to me that the objective of this study was to reduce costs to the foreign shipper. It has ignored the fact somewhat that pilotage laws are environmental and safety regulations enacted to protect the public interest. While cost efficiency is a legitimate goal, it should not be the primary goal.

I believe the *Exxon Valdez* disaster raises issues that are relevant to the many erroneous policy decisions suggested in the Great Lakes pilotage study. An environmental impact study should be done to analyze the effects of a major oil or chemical spill on the Great Lakes. The Great Lakes pilotage study's final draft should be discredited and abandoned. There should be a public hearing at a location convenient to the Great Lakes so that all interested parties may participate.

I thank you.

Senator LEVIN. Captain, we thank you very much for that testimony.

Our last witness on this panel is David Usher, who is a member of the Board of Directors of the Spill Control Association of America, an industry group of people who are involved in controlling these spills. He is also President of the Marine Pollution Control Corporation.

Mr. Usher, a warm welcome.

TESTIMONY OF DAVID USHER, MEMBER, BOARD OF DIRECTORS, SPILL CONTROL ASSOCIATION OF AMERICA, AND PRESIDENT, MARINE POLLUTION CONTROL CORP.[1]

Mr. USHER. Thank you, Mr. Chairman. I appreciate the opportunity to be here today.

I have been in the spill control business for about 23 years. My company has participated in the cleanup of major oil spills in all parts of the world, and we are presently involved in the *Exxon Valdez* situation in Alaska and have been since day 2 of the circumstance.

I would also like to add that the Spill Control Association of America represents the industry composed of companies dedicated to protecting the environment, and I am proud to be an officer of that trade organization which has such an outstanding record.

Having been involved in spill control for more than 2 decades, I have studied carefully the dynamics of oil spills and their many facets. The *Exxon Valdez* is but one example, and I have had firsthand experience with many incidents right in the Great Lakes.

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[1] See p. 184 for Mr. Usher's prepared statement.

While much needs to be done in helping to prevent such disasters, I recommend that we not adopt unnecessary and costly measures. We must address oil spill problems with cost-effective techniques and skilled personnel.

I urge careful examination of the complexities involved in oil spills and adopting comprehensive measures which will assist and not complicate cleanup efforts.

I suggest that we create a more dynamic partnership between Government, organizations like the Petroleum Industry Response Organization, which is tagged PIRO, which represents the oil industry, and companies actually engaged in the cleanup of oil spills. Each has an essential role in oil spills, and this Committee can help in promoting these respective responsibilities.

I suggest that Government's role is to monitor and to enforce the cleanup of oil spills. That is the role historically played by the Coast Guard, and it has been done so effectively, I might say.

It would be a serious mistake, in my opinion, for Government, whether at the national or State level, to create its own cleanup forces. As I am sure you know, such an action would require substantial expenditures and would be a duplication of what already is in place. Government should work toward eliminating duplication. Duplication does little other than increase expenditures and cause bureaucratic problems and confusion.

I might add that the needed equipment requires expensive maintenance, and most important, continuous use by its personnel to ensure the development of the expertise necessary in these catastrophes.

The private sector's continuous participation in cleanup efforts has created in the industry the professional maturity and experience necessary in these situations.

The problem is not with the lack of spill control expertise and ability. The problem is one of response time and coordination—and this is where the Government can help. It can assist by assuring that response time and coordination is monitored; it can help in research and development. In short, Government, Federal, State, should assist in developing administrative policies which assure the quality of private sector spill control organizations.

I was asked by a staff member to offer my views on the proposed Petroleum Industry Response Organization, or PIRO, as it is called in the industry. As I indicated, I think there is a need for a partnership among all parties, a partnership which allows each participant to do what it does best. Just as it would be a waste of resources for Government to create its own strike forces, it would be a similar waste for PIRO. I believe PIRO can assist this industry with research and development, which is a prohibitive undertaking for the spill cleanup contractor. Indeed, it is too expensive.

It can also provide the kind of equipment not presently available in private industry, the kind that is not in the traditional cleanup inventory for use on open waters and heavy weather conditions. PIRO can improve training of its own people, develop standard debriefings, assist in coordinating cleanup efforts and other major administrative tasks.

The major point is that much needs to be done—I can assure you of that. But we must assure that each party in the partnership is used as efficiently as possible. Government is best at monitoring and enforcing policies. An organization like PIRO, given its resources, can do much in providing the special, heavy-duty equipment needed and in assisting the coordination of response teams.

The actual cleanup operations should be left to those professionals who have the training, experience and know-how to do it effectively.

I also want to make the point that we support the present system in which the Government selects the contractors to clean up oil spills when the offending party refuses to accept responsibility or is financially unable to do so. We believe this system should not be changed, and the decisionmaking process should not be encumbered by intervention of other third parties.

As I said, I am proud to be a part of this industry. We have made substantial contributions in assisting and mitigating these disasters, sometimes in very hazardous situations. And we are prepared to continue to do so, working with Government and PIRO, with each partner carrying out the responsibilities to assure a successful project.

Again, I want to thank you for the opportunity to testify, and I'll be available for any questions you might have.

Senator LEVIN. Thank you very much, Mr. Usher.

Let me just ask you, Mr. Quinn, a couple of questions before we get to questions for the folks who have already testified.

Could you just describe for us briefly your job, and tell us about how many spills you handle in a month?

Mr. QUINN. My job as Director of Spill Response involves the coordinating of the New York State programs for prevention and response to oil and hazardous chemical spills. I have a staff of 82 people, distributed in nine offices throughout the State, who respond around-the-clock to any reported spill.

We are averaging now approximately 900 spills per month, over 10,000 spills a year, reported to us from a variety of sources which will include vessels and onshore facilities, predominantly includes leaking underground storage tanks, which is also part of my program.

I am the contracting officer for the State of New York for spill response contractors. We have a standby network of 27 contractors available to us on 2-hour call-up to respond to and clean up major spills when the responsible party does not do so.

We are involved in inspections of facilities as well as response to incidents, contingency planning, coordination with other governmental agencies. I am the State's representative to the Federal Regional Response Team as well.

Senator LEVIN. I know that you worked on the preparation of Mr. Marsh's statement, and I gather then that you would agree that there are inadequate heavy-duty, ocean-type barriers and booms available for Great Lakes cleanup?

Mr. QUINN. I would say that the *Valdez* incident indicated to us that the total inventory is probably not adequate, and the location of those materials in specific areas certainly was not in terms of the ability to use them on a timely basis. Again, we suffer from having incomplete information of what is available in governmental and industry hands of these materials, but I would say that for the heavy-duty materials, we are lacking.

Senator LEVIN. Why do we not know what is available in a comprehensive way in the private sector? Mr. Usher is sitting right there, and I am wondering—for instance, Mr. Usher, let me just ask you could you supply to the Subcommittee—would you, for our record—the list of equipment which is available in each of your members' inventory?

Mr. USHER. Yes. Interestingly so, yesterday prior to coming here, I asked a couple of my staff people in Detroit to make a very "quick and dirty," survey, if I may say so. The survey came out of a reference index that is provided to the industry, and we asked the following questions of various companies that were listed—and they weren't necessarily members of the Spill Control Association. It was even illuminating to ourselves, and I will submit it for the record; I believe we have given you a copy of it.

Senator LEVIN. If you could make that available for the record, I think it would be useful.

Could that survey, not "quick and dirty." but could a precise survey, be made and made available to the States and to EPA and to the Coast Guard? And I am not talking about who is in the business, because I think they know that, but what is the inventory, including the condition and the age of the equipment that is available for each contractor—could that be pulled together and made available to Michigan and New York and EPA and Coast Guard and all the other States and other interested parties?

Mr. USHER. Oh, I'm sure it could be. It would take a little bit more time, obviously, as you have stated, than what we have done. But it was very interesting to me. I must admit, if I may mention some of the items which I think would be of interest to the community of individuals who are here—first of all, we found 49 companies that claim that they do spill cleanup work. Mind you, I don't know the extent of size of all these companies. But in the reporting procedure, they found that there were 30 skimmers available. I would assume that these skimmers are of various sizes; some of them might be small and used for groundwater needs. We weren't that specific, but we tried to find out as much as we could, and we will expand on that as you have requested.

In reference to vessels, they were from the type of Boston Whalers up to various types of supply craft, and there were 87; personnel, 1,351; containment booms, 13.4 miles—which, of course, is 70,700 feet—oil sorbent boom, which is an absorbing material, we found that 4.5 miles, or 23,650 feet was available. Sorbent materials was listed in a basis of 21 trailers, or 67,200 cubic feet.

Again, this was a "quick and dirty" analysis; there may be some duplications, and I am aware that that can happen. But at least it was encouraging to me in making a quick survey of that type.

Senator LEVIN. It would be helpful to us, and I think frankly to all of the agencies and States involved, if you could make that survey, including the geographical location of the equipment as well as its condition and its age, State-by-State.

Mr. USHER. I will——

Senator LEVIN. Now, that's going to take you some time to do, but one of the critical issues is how much equipment is available to handle a major spill, and where is that equipment. We have got to know that, we don't know it, and it is critical that we do know it. So if you could make that survey, working with the agencies if they would like to work with you on it. But I think the industry is in a position where they could do it fairly thoroughly, and then at least it would be available to us.

Mr. USHER. I might add one more note, that oil company cooperatives were not included in this particular survey, and they generally do have a fairly decent amount of equipment. One group that was included was our Canadian brethren, which is PIMEC, whom we have worked for in the past. They are the Petroleum Industry Marine Environmental Council, based in Toronto. So there are response capabilities there, and that is my main concern today, to voice that feeling and opinion.

Senator LEVIN. The extent of that capability is critical, and it is not known. We need it to be known. It has been testified that there is a feeling among responsible people both in Michigan and New York—at least we have had two people testify to this—that a certain type of equipment that could be needed in a major spill is not available in the amount needed, in the place needed, in the time needed. That is critically important testimony, and in order to, it seems to me, fill out the picture, we must have your equipment listing and your inventory, including location and age, in order to get a full picture of that. But their testimony is very, very significant, and we want your material for the record, to fill out the record.

Mr. QUINN. Mr. Chairman, could I make one further comment on that?

Senator LEVIN. Yes.

Mr. QUINN. As part of our contracting responsibility, we get a list of equipment that the contractors have. The question, of course, becomes not one of ownership but of utility--what is the status of that equipment at any given time, and availability, where is it. Since the contractors work for private parties as well as the Government agency, a lot of their equipment is in use on other spills on a day-to-day basis, and although much of that equipment may be owned, it is not necessarily available at the time you want to call for it.

Senator LEVIN. That is an important question. I am wondering, Mr. Usher, if you might, either now or for the record, give us some kind of an assessment in terms of availability; what could we expect would be available if there were a major spill in the Great Lakes, if one million gallons of oil spilled—and that would be a major spill, not at all unprecedented, but major—what would be available, percentage-wise, for instance? Give us an estimate of the equipment that would be in that inventory. I am not asking you to do that today because it is a very complicated question, but it is a critical question, and you ought to include that with that inventory if you would.

Mr. Quinn, while you've got the mike, how long would it take to get some equipment—for instance, say we wanted to get equipment from New York to Lake Superior. How long would it take for that equipment?

Mr. QUINN. The equipment that is available to the State is minimal and to its contractors, although extensive, is really not staged or contained in a way that it would be transportable for long distances.

If we look at the U.S. Coast Guard Strike Team, they have that palletized and contained in such ways that it can be loaded onto aircraft quickly and taken. Most of the cleanup contractors that we have do not have that kind of staging of their materials; they are available in their yards and are brought to the scene usually by truck.

So I'd say if we were looking at bringing contractors' equipment out of New York, unless there were some way to get that onto aircraft, we are looking at a loading and driving time that is going to be characterized in days rather than hours.

Mr. USHER. May I inject something at that point, please?

Senator LEVIN. Yes, sir.

Mr. USHER. Having experienced the *Exxon Valdez* circumstance, I must tell you that some obvious innovations have occurred. One must bear in mind that the Valdez area is extremely remote, particularly the Prince William Sound area, and we found that the Government capability as well as the private sector, that is to say, aircraft available to us, was very interesting to say the least. We were able to marshal forces very quickly. Many of the contractors in the United States who had equipment were called upon, that is to say their equipment itself. But aircraft was made available, and it can be in catastrophes of that type.

It is amazing, if one would realize the armada of equipment and material that is presently in Valdez and will be demobilized in the next week.

Senator LEVIN. But there was a particular shortage of a barge, as I remember, or barges.

Mr. USHER. Not really. It was a matter of location of certain types of barges.

Senator LEVIN. How would you move barges around?

Mr. USHER. Well, it depends upon size, of course——

Senator LEVIN. Say there were a major spill in the Great Lakes and you needed a number of barges; how would you get them there quickly?

Mr. USHER. Well, for example, we have two barges that exist for our response capability. They are small barges, but they are recovery barges, and vacuum systems, et cetera. They are presently in the Prince William Sound area. They have been transported there, and the interesting aspect of it, as your question is, we transported them by truck from Detroit to Tacoma, Washington. They were loaded aboard what is called a roll-on/roll-off vessel, and transported from there to Anchorage and then again put on a truck, transported to Valdez, craned aboard a larger barge, and then brought to their destinations in the Prince William Sound area.

Senator LEVIN. How long after the spill did they arrive in Prince William Sound; do you know offhand?

Mr. USHER. Well, in this particular case, these barges were not utilized until July. The specific need for those barges——

Senator LEVIN. How long after the spill would that be?

Mr. USHER. That would be about 3 months, but I am trying to give you an idea of portability, that there are craft available that are used for skimming which, of course, is part of cleanup procedure.

Senator LEVIN. How long did it take, say, from the time that you were requested to have those barges sent to Alaska did they arrive?

Mr. USHER. That was a period of 8 days. However, that was done in the method that I mentioned. Those barges could also be loaded aboard a C5A or a C130 or a 747.

Senator LEVIN. Do you know why they weren't?

Mr. USHER. Yes—in this particular case, there was other equipment that was available for the primary cleaning, and they were using the Navy equipment which we also are the operators of—in that particular case, it was a belt conveyor system that was used for the primary stages of recovery. In the later stages, they wanted to use vacuum because it was when they were hot-water-washing the shoreline areas, and needed another type of conveyance to receive the oils.

Senator LEVIN. Mr. Quinn, the industry, we have heard, is setting up a center in New York for major spills which is supposed to be available for response throughout the Great Lakes, and we have heard testimony that there should be a Great Lakes center in addition to the one in New York, one more centrally located in the Great Lakes.

If there were a major spill on Lake Superior, how long would it take for that equipment, say, from that center in New York, if it were needed to supplement whatever the private sector provided; how long would it take for that to get to Lake Superior, do you know?

Mr. QUINN. If it were aircraft-loaded and transported, we're talking hours, and I would estimate 12, perhaps an overnight response capability. Over-the-road, anything that had to be brought in, I am estimating 3 days.

Senator LEVIN. Is 12 hours soon enough in a situation where there is a major spill?

Mr. QUINN. I think again, as estimated in the *Valdez*, the first hours are much more critical. Each passing hour reduces your capability to contain and control. If I had my preference, I would rather be there in 2 hours than 12 hours, and I think I'd be more effective if I had that capability in the short period.

Senator LEVIN. The closer the equipment is to the spill, the greater the capability of cleanup.

Mr. QUINN. That's correct.

Mr. USHER. May I interject again at this point, please?

Senator LEVIN. Sure.

Mr. USHER. In reference to response capability with aircraft, I don't feel that 12 hours is the lead-time that is necessary. There are organizations as ourselves that do keep a daily tab on aircraft availability for freight movement, and this of course is the private sector. And I would say that my guesstimate—I worked in Ogdensburg, New York in 1974 and 1986, and in fact in 1974 did use aircraft from Detroit to Ogdensburg—with total mobilization and a signal to move, we were able to provide that in 1974 within 5½ hours.

Senator LEVIN. From what point?

Mr. USHER. From Detroit.

Senator LEVIN. No, from what point when you got a signal.

Mr. USHER. When we were told that we should mobilize boom equipment for a vessel called the *Imperial Sarnia.*

Senator LEVIN. The first that you heard of the request to the time that it arrived on the scene was 5½ hours?

Mr. USHER. That's right. But I must say we were lucky to be able to get an aircraft at that time. There could be lag times of an hour or 2 hours, but certainly, 12 hours at least from the standpoint of people in our particular activities would seem long, and I'm sure that if the military or Government sector were involved, with more coordination of the type that I mentioned earlier, certainly that could be reduced.

Senator LEVIN. Okay.

Professor Lyon, let me ask you a question about your recommendation that there be a National Great Lakes Spill Prevention Program in the EPA. There were a number of elements in that program which you also described to us. Have you discussed that idea with the EPA?

Mr. LYON. No, I have not discussed it. I have told them that I would make that recommendation, but I really can't say that I've discussed it.

Senator LEVIN. We will pass that along to them for their comment on that.

Captain Schnell, the question of waivers that you've talked about—how long we will wait for a pilot—how long do other areas of the world wait for a pilot?

Captain SCHNELL. Well, I can't really answer how long they wait for a pilot as far as waivers in other parts of the world. I think they are very minimum. For instance, the Port of Rotterdam which, in a statement by Ms. McRea, the chief of the Great Lakes pilotage study, she made a comment that they have something similar to a B Certificate there, and I have studied this, I have talked to a pilot from the regional offices of Rotterdam, and he says there is no such thing. He said it is in writing, and he said a waiver never happens because we always supply a pilot. But in the event that there was a waiver, it would be very minimum; it may be an hour or 2——

Senator LEVIN. In other words, they would wait for a pilot?

Captain SCHNELL. They would absolutely wait for a pilot, yes.

Senator LEVIN. They wouldn't say, "Well, 6 hours has gone by; we're going to waive the requirement." They would just simply wait.

Captain SCHNELL. Yes. Let me just interject something else, too, as long as we are talking about ships waiting to do something or go into a berth or something.

A vessel leaving the Great Lakes going to, say, Algeria or one of those Northern African countries or maybe India or whatever, they sit at anchor for anywhere from 4 to 6 weeks just waiting to discharge cargo. So I think a 2- or 3-hour, or even a 12- to 24-hour waiting for a vessel to move somewhere is really quite small and quite irrelevant.

Senator LEVIN. Do you know offhand whether other countries would waive the requirement after 6 hours? Do we know of any other countries that——

Captain SCHNELL. Not to my knowledge. Like I say, Ms. McRea interjected in her correspondence with me that this happens, and then I talked to the Rotterdam people, and no.

Senator LEVIN. I see. Did she specifically identify Rotterdam?

Captain SCHNELL. Yes, she did.

Senator LEVIN. Did she identify any other places where she thought there was a waiver?

Captain SCHNELL. No, no. I have the letter from her in regard to that, and I have spoken to the Rotterdam people and asked them to send me something, plus I have sent them a letter. This was back in May; I haven't heard from them yet. Whether or not they want to commit themselves to something, I don't know. But I will make an attempt to get back with them to see if they can interject a little more information for me.

Senator LEVIN. Who designates waters in the Great Lakes as needing pilots?

Captain SCHNELL. The President of the United States, I believe.

Senator LEVIN. Not the Joint Commission? Do you know, Professor?

Mr. LYON. I don't think it's the Joint Commission.

Captain SCHNELL. I would think it is the President——

Mr. LYON. It is an Executive decision by the President?

Captain SCHNELL. Yes.

Senator LEVIN. Do you know why the Mackinac Straits are not designated as requiring a pilot? Do you know offhand the history of that?

Captain SCHNELL. I do not know. I really don't know. I wish I did have a reason. Perhaps my colleague, Bill Yaake, can answer.

Captain YAAKE. Back in the establishment of the Pilotage Act in 1960, there was a strong effort by the Shipping Federation of Canada to keep pilotage requirements at a minimum. Therefore, to get a ship from Port Huron, Michigan, which is the headwaters of the St. Clair River, to Chicago, they wanted to go strictly unpiloted. And ever since then, 1960, there has been an argument on the part of ferry companies and everybody that the Straits are hazardous waters and that they should be designated. But we just have not been able to overcome that barrier from that.

Senator LEVIN. And this decision is a Department of Transportation decision in the Executive Branch, as far as you know—by the President, but acting on recommendation of the Department of Transportation; is that your belief?

Captain YAAKE. If the Department of Transportation recommended that U.S. ports and the Straits of Mackinac be designated to the President, it would just add more designated waters to what we presently have.

Senator LEVIN. But that recommendation would first come from the Department of Transportation to the President; is that your understanding?

Captain YAAKE. It should come from there, yes.

Senator LEVIN. All right. Professor, I think it was your statement which made reference to "anecdotal testimony by responsible people," telling us that foreign flag vessels entering the Great Lakes are dumping hazardous waste without our knowledge, I think to quote your statement. Could you elaborate on that?

Mr. LYON. Yes. I would be happy to give you a report that was given to my committee by Mr. R.A. Stevenson, President, Corporation of Professional Great Lakes Pilots, about an experience he had with such a tanker.

Senator LEVIN. That would be useful if you could give us that.

Captain, have you ever heard of that?

Captain SCHNELL. I'm sorry——

Senator LEVIN. This had to do with surreptitious dumping of toxic materials by foreign flag vessels in the Great Lakes; have you heard reports of that? Do you believe it happens, or you just don't know?

Captain SCHNELL. It is very possible. I can't say that I have seen it myself, but I have had a couple of pilots mention the fact to me that they think they perhaps have dumped ballast or something.

Senator LEVIN. Does anybody else want to comment on that surreptitious dumping question—any of our other witnesses on this panel? Have you heard of it? Do you believe it happens?

Captain YAAKE. Senator, in regard to Walter's comment there, the ship was sitting at Sarnia, and they refused to take slop or something, so they got orders to go up to Lake Huron, they were going to go to the Sioux. In the middle of Lake Huron, they got orders to come back to Sarnia to load, and the slop that was in there was gone. I was not onboard the vessel, but it was relayed to me.

Senator LEVIN. All right.

Mr. LYON. This is the written report by Captain Stevenson.[1]

Senator LEVIN. That would be great. We would appreciate a copy of that for the record.

Either Mr. Marsh or Mr. Quinn, can you tell us what protections are taken with respect to drinking water supplies in New York? Is there anything particular that is done relative to that in the lakes adjacent to New York?

Mr. QUINN. In any spill incident, all possibly-affected water supply operators are notified. In the Great Lakes, our major systems, at Rochester for the Metropolitan Area, and at Syracuse, are offshore and submerged intake facilities in about 50 feet of water. If we had an oil spill that stayed on the surface, these intakes would not be affected. If we had a chemical spill that mixed in the water column or was heavier than water and sank, we've got a particular vulnerability there.

So at any time there is a potential for a spill reaching an intake, the water utilities go on 24-hour alert and go into very frequent testing to indicate if their intake waters have been affected.

Fortunately, in the Rochester and Syracuse areas, there is some availability to take upland or inland water supply. These were the systems that were used before the lake intakes were constructed and are still available to some extent. They would not sustain the need, but they would carry us in some emergency conditions for a short period of time.

This is one of the things we would be very concerned in not dispersing any spill within the water column because a dispersed or sinking spill would have a much higher potential of reaching those submerged intakes.

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[1] See p. 215.

Mr. LYON. May I comment on that?

Senator LEVIN. Sure.

Mr. LYON. Senator, what Mr. Quinn has said is traditional in the spill-water system field, but it presumes that the spill is known. It is quite possible that a chemical spill or surreptitious dumping occurs without anybody knowing it, including the water source. In fact, I talked to a colleague of mine who was Water Commissioner in Philadelphia, and the waterworks group are trying to figure out a way of determining whether a strange chemical is getting into their system; they are talking about using fish, because the rate of respiration of fish changes when a strange chemical gets into a system.

Senator LEVIN. We appreciate all of your—yes, Captain?

Captain SCHNELL. Could I just interject one thing here?

Senator LEVIN. Sure.

Captain SCHNELL. It is nothing to do with the spills, but the past several years, the last 2 years specifically, there have been two Soviet vessels that have been coming up here. They make 3 or 4 trips a year with tractors, et cetera, and they certainly would qualify for the B Certificate if the Canadians wanted to give them the B Certificate. They would have the required three trips over the waters; they speak adequate English. This is just another thought that might be interjected that we could possibly have a B Certificate Soviet vessel plying our waters. I know our relationships with the Soviets are better than they have been in the past, but that kind of bothers me also.

Senator LEVIN. We are grateful for your testimony.

Does anyone here want to add anything before we wrap it up? [No response.]

Senator LEVIN. Thank you. This morning's hearing has been particularly useful, I think. We are going to have some added focus on protecting the Great Lakes, both in terms of responding to and preventing spills. We obviously have seen a serious reduction in money that is spent for prevention, and it is intolerable, unacceptable. If you look at those figures, there is a direct correlation between the money we spent to protect the Great Lakes and how many spills we have.

It is not often, by the way—and I'll repeat this—that you get this direct a correlation between the amount of money that you spend on inspections, which is a very small amount of money, and the product that is yielded, which is a reduction in the number of spills. And we are going to focus on that.

We are going to focus on expanding the Federal coordinating role, surely. We don't have a good handle on where the potential problems are yet. We don't have a good handle on even what equipment would be available. We are going to work on that. We don't know what additional equipment should be available to supplement what is already available.

Spill R&D money has been cut. We know that that yields a really good product. We have seen examples of it in terms of technology improvements when we have invested in research and development to handle these spills when they occur, for the equipment that is necessary.

So we have got a big menu ahead of us, but the goal is clear, and the Great Lakes must be protected. All of us believe deeply in that, and we are going to do everything we can to carry out that mission.

We are grateful to you and the other witnesses. We may have some additional questions for you, and there is some additional material which we will be most appreciate of from you, Mr. Usher. Again, our thanks for being with us.

We stand adjourned.

[Whereupon, at 12:25 p.m., the Subcommittee was adjourned.]

APPENDIX

TESTIMONY OF DIRECTOR DAVID F. HALES

STATE OF MICHIGAN

DEPARTMENT OF NATURAL RESOURCES

Introduction

Thank you for the opportunity to present testimony to this Committee on behalf of Governor James J. Blanchard regarding Great Lakes spill prevention and emergency response. Shortly after the environmental tragedy involving the Exxon Valdez on March 24, 1989, Governor Blanchard directed the Michigan Department of Natural Resources, Office of the Great Lakes, to prepare a report on Michigan's emergency preparedness for oil and other hazardous material spills on the Great Lakes.

The Office of the Great Lakes submitted an interim report to Governor Blanchard May 23 outlining its 28-point plan to improve Michigan's spill prevention efforts and response capabilities. As a result of this report, Governor Blanchard appointed Captain Arlyn Brower, Michigan State Police Emergency Management Division Commander, to chair a task force to implement this plan to improve Michigan's preparedness for response to oil and hazardous materials spills on Great Lakes waters.

In addition, Governor Blanchard directed the Office of the Great Lakes to work with the Council of Great Lakes Governors and the Great Lakes Commission to assess regional response capabilities.

The Director of the Office of the Great Lakes, Mr. J. D. Snyder, chairs a Great Lakes emergency preparedness task force, established by the Council of Great Lakes Governors and Great Lakes Commission, which is developing a report on the status of regional emergency preparedness, and will make recommendations to improve coordination and enhance cooperation. That report will be submitted in November.

The Great Lakes: A Unique and Vulnerable Ecosystem

The Great Lakes are the most important source of fresh surface water in the world. The Lakes contain 95 percent of our nation's and 20 percent of the world's supply of fresh surface water. They are the major drinking water source for nearly 24 million people in eight states and two Canadian provinces. In addition to Governor Blanchard's concern about the damage that would be suffered by the environment in the case of a spill on the Great Lakes, he is deeply concerned about providing adequate protection for the more than 60 Michigan drinking water intakes on the Great Lakes.

The Great Lakes are uniquely vulnerable to oil and other hazardous materials spills because they are a relatively closed system. As a closed system, the same water remains in each Lake for long periods of time. Each of the Great Lakes has a regular cycle, or retention time, which is the time required for water to flow out of the Lake. The retention times vary from 2.6 years for Lake Erie to 191 years for Lake

Superior. Retention times for Lake Michigan, Huron, and Ontario are 99.1, 22.6, and 6 years, respectively. As a result of these long retention times, spills on the Great Lakes have more acute long-term ramifications than oceans which are capable of dispersing materials on much larger areas of open waters.

All Michigan surface water intakes are vulnerable to some degree. Detroit's Belle Isle intake is especially vulnerable due to the heavy tanker vessel traffic on the Detroit River and frequent spill events. Some provisions are in place to minimize the impact to this intake. One Detroit water treatment plant is located north of Port Huron and is subject, therefore, to less traffic. However, this plant supplies only approximately 15 percent of the total system demands. All of the State's surface water treatment plants are required to develop contingency plans to address spills and other types of emergencies.

Billions of gallons of Great Lakes water are withdrawn every day for industrial, agricultural, and municipal purposes. Millions of people fish and boat on the waters and live, work, and vacation along the shore. The Great Lakes coastline stretches for 9,000 miles, and Michigan has the largest share with 3,200 miles. Michigan's Great Lakes coastline is longer than the entire Atlantic coast, and second only to that of Alaska's. In terms of size, quantity, and importance, the Great Lakes are indeed a freshwater sea.

Oil and Hazardous Material Traffic on the Great Lakes and Potential Containment and Cleanup Problems

According to information obtained from the Lake Carriers Association and the Canadian Shipowners Association, 81 million barrels of petroleum and hazardous materials were carried in U.S. and Canadian tankers in the Great Lakes waterways in 1988 (18.9 million in U.S. and 62.3 million in Canadian tankers). There are four U.S. tankers owned by two companies and 22 Canadian tankers owned by three companies carrying these products on the Lakes. Although the largest tanker on the Great Lakes holds 120,000 barrels, about 8.5 percent of what the supertanker Valdez was carrying, the consequences from a spill from such a tanker would still be extraordinary and disastrous.

In terms of the percentage of overall cargo traffic on the Great Lakes, petroleum and other hazardous materials account for a relatively small percentage. For example, these materials account for 3.4 percent of all waterborne U.S. domestic shipments in 1987 and 4.5 percent of all St. Lawrence Seaway traffic. But in terms of quantity, there is a substantial amount of these materials moving through the Great Lakes: nearly 7 million bulk liquid short tons each year, and this does not include Canada-to-Canada shipments not passing through the St. Lawrence Seaway.

We do have some tanker safeguards. For example, the United States tankers are all double-hulled which affords some extra protection. However, the Canadian tankers are not. Furthermore, there are tank barges, both U.S. and Canadian, which are single-skinned. Requirements for one-way vessel traffic are in place for parts of the Detroit and St. Clair Rivers which afford some protection. In addition, because of the traffic and complexity of the waterway, U.S. and Canadian federal navigation rules have been established, and a 24-hour vessel traffic center in Sarnia, Ontario has been established. All ships are required to make radio contact with the Vessel Traffic Center when they enter the Detroit River.

We have learned that cleanup efforts are extremely difficult in many areas of the Great Lakes. There are extremely strong currents in the connecting waterways - St. Marys, St. Clair, Detroit, and Niagara Rivers. A spill on the open waters of the Lakes would cause severe problems because of long distances to reach the spill. Icing over of the Lakes' waters during the region's cold winters would make cleanup exceptionally difficult if a spill occurred in the winter or early spring.

Much of the existing containment equipment available on the Great Lakes is in poor condition and cannot handle Great Lakes wave conditions. Most containment equipment is owned by private contractors who stock equipment for smaller inland streams with slower currents. The U.S. Coast Guard relies primarily on private contractors for federally funded spill clean-ups. It is reported that the Canadian Coast Guard has about 2000 feet of boom in its Amherstburg office on the Detroit River. The Michigan Department of Natural Resources has boats scattered across the state, and we are currently assessing our response equipment and placement.

Spills do occur, however. By and large, they have been limited in terms of extent. However, the U.S. Coast Guard reported 133 oil and chemical spills in 1988 on the state's Great Lakes waters. Environment Canada reports that there were 275 reported spills in a 12-year period between 1972 and 1984 in the St. Clair River area with 161 reaching the River or its tributaries. Of these, 32 involve 10 or more metric tons, and 15 were over 40 metric tons. The most significant spills were 40 spills totalling 1,000 metric tons of oil, 11 spills of 155 metric tons of acid, 10 spills of 59 metric tons of paint and 9 spills of 7 metric tons of phenol, 6 spills of 16 metric tons of styrene, 4 spills of 94 metric tons of sodium hydroxide, 3 spills of 23 metric tons of vinyl chloride, 2 spills of 11 metric tons of xylene, and 2 spills of 0.5 metric tons of benzene. The total of these critical spills is 88 spills of over 1,300 metric tons of hazardous materials in a 12-year period.

The map gives an overall picture of the locations of all Great Lakes loading and receiving ports for petroleum and hazardous materials. A large bulk oil storage facility at Traverse City on the picturesque Grand Traverse Bay represents a location where the potential for a problem exists. There are also facilities at Ferrysburg and Muskegon close to Lake Michigan. Marathon Oil has a loading and unloading facility on the Rouge River as does Shell Oil. Any spills at those locations could flow into the rapidly flowing Detroit River and be extremely difficult to contain. They could quickly reach the shallow waters and rich fishery of Lake Erie.

It is important to note that Governor Blanchard and the other Great Lakes Governors banned oil drilling on the Great Lakes in 1986 by formal agreement. Furthermore, Ontario's Premier David Peterson sent correspondence to Governor Blanchard affirming Ontario's commitment to ban drilling for oil or gas in the boundary waters other than limited gas drilling already in place on Lake Erie.

Need for Effective Emergency Preparedness and Prevention

Lack of resources for spill prevention and response is a serious concern. A **systems approach** to oil and hazardous materials response should be developed. A systems approach includes: spill and accident prevention, emergency preparedness, emergency communications and coordination, and actual emergency response, containment/cleanup, and evaluation.

The areas of prevention and early detection hold great promise to protect the Great Lakes. As a part of prevention, hazard assessment is critical. Each major source of oil and hazardous material source should be regularly inspected to examine the potential for a catastrophic event. These sources include storage tanks, vessels, barges, tugs and industrial and municipal sites. Inspections should be scheduled on a prioritized basis in terms of size, nature of materials, location, history of performance, and time since last inspection. Installation and maintenance of automatic early warning devices to detect leaks at refineries and on vessels should be required. Our state task force is conducting a careful review and examination of this area.

Quick and effective response is absolutely critical to the control and containment of any oil or hazardous materials spill. In the Exxon Valdez oil spill report submitted to the President by Secretary of Transportation Skinner and EPA Administrator Reilly, it was found that the equipment staged at the Alyeska Terminal was insufficient to cope with the spill of the magnitude of the Exxon Valdez. Furthermore, the time lag in transporting additional equipment to the scene from out of state exacerbated the response time problem. The initial efforts to get the equipment on the scene were slow because the response barge's equipment was not in place. Also, the quantity and size of the booms were insufficient to respond to the spill adequately. Few skimmers were working on scene during the first 24 hours, and Alyeska also lacked a tank barge into which the skimmers could discharge recovered oil. Because the barge equipment had to be assembled before its departure, equipment did not arrive on the scene of the spill until over 12 hours after the spill. This was a critical failure. Within five hours of the Valdez running aground, it is estimated that 10.1 million gallons of crude oil had spilled into Prince William Sound.

We can learn much from the Valdez tragedy but an even greater tragedy would be to not use that which we have learned.

It is, then, imperative that emergency response centers are established in the Great Lakes Basin. The oil industry has developed a national plan to respond to oil spills which includes the proposal for five emergency response centers on the country's ocean coasts, but any of these centers are simply too far from the Great Lakes to provide the necessary rapid response capability necessary to control and contain any serious spill. I have exchanged correspondence with the

President of the American Petroleum Institute regarding this matter, and I am extremely disappointed that the oil industry has not responded affirmatively to the need for a Great Lakes emergency response center. The establishment of an emergency response center on the Great Lakes with appropriate cleanup equipment and trained personnel would be most welcome and is indeed most necessary.

Over the past few years budget cuts have reduced the the number of the Coast Guard's strike teams from 3 to 2. We have an excellent opportunity to restore the number of strike teams to what it previously was and consider the placement of that strike team on the Great Lakes. This strike team could operate in a complementary fashion in conjunction with the oil industry's emergency response center if one is established. If the oil industry fails to act, then the need for a Coast Guard strike team is that much more acute.

The Great Lakes share some of the same complexity and difficult characteristics as the oceans do in regard to such factors as varying sea conditions, weather conditions, the physical properties of the oil spill, darkness, logistics, and safety. As Lake waves approach 6-8 feet, a good deal of equipment loses its effectiveness and deployment of the equipment becomes both difficult and dangerous. The use of smaller vessels also becomes more problematic, and it is smaller vessels which are usually available. Weather conditions, including snow, heavy rain, fog and temperature all affect the ability to deploy equipment.

Oil varies greatly in its physical properties, ranging from the highly viscous crude oil to the much more volatile characteristics of refined oil. These different properties pose different kinds of challenges. In regard to safety, large volumes of oil on the water can present a major potential explosion or fire hazard problem which might delay response.

Crticial delays can result when transport to the location of the spill is complicated by lack of land routes or the fact that it's hundreds of miles from shore on open waters.

All of these characteristics taken together, which are similar in many ways to the problems encountered on the oceans, require careful consideration in establishing appropriate response capability, including both personnel and equipment.

Another important area relating to this question is the nearly total lack of cleanup technology research that has been conducted over the past several years. It would be particularly helpful for the Coast Guard, EPA, or other appropriate federal agency to conduct research on identifying and developing the most appropriate technologies for cleaning up spills on the Great Lakes.

In selecting a cleanup technology, it is critical that any cleanup technique will not cause greater harm than that allowed by natural processes to cleanse the environment. As an example, it should be noted that the federal EPA has determined that oil dispersants should not be used in fresh water systems. This type of information needs to be well distributed to those responsible for spill cleanups on the Great Lakes.

The Coast Guard inspects all U.S. and foreign vessels for safety, pollution prevention, and navigational safety requirements. They also conduct annual inspections of transfer operations and equipment at waterfront facilities which transfer oil and hazardous materials. Vessel information is also kept by the Coast Guard in a national tracking system.

In recent years, however, Coast Guard pollution prevention and response efforts have been weakened by redirecting personnel to other enforcement programs. It is essential that these priorities are reassessed. Full funding of Coast Guard programs to protect Great Lakes waters is likewise essential.

U.S. and Canadian tank barges are inspected, but there appears to be a gap in Canadian regulation of barges. Canadian tank barges do not receive pollution prevention inspections by Canadian officials.

Pilotage of Great Lakes vessels is an extremely important issue that requires careful review and examination. The U.S. has an extensive training and certification program for Great Lakes pilots which differs from Canada's program. As many areas of the Great Lakes are difficult to navigate and require the expertise of a highly trained and experienced pilot to maneuver the vessel safely, any effort to relax current pilot requirements must be resisted. Foreign vessels are required by the United States to have a Great Lakes pilot onboard the entire time they are in the Great Lakes. Canada has a less restrictive program and allows foreign captains fuller control after they have made several trips on the Great Lakes. This has the potential for being a dangerous situation.

Governor Blanchard joins Representatives Dave Bonior and Jim Oberstar in urging Secretary Skinner to conduct a public hearing before adopting any new pilotage standards which would relax current requirements. Governor Blanchard urges the Department of Transportation to assess the environmental impact of any proposed changes before any further steps are taken.

A uniform spill notification and tracking system should be considered. Currently, we do not have good data to help determine what causes the spills that we have had. This is a key component of prevention; that is, to identify current problem areas and to address them immediately. Michigan is working with other states in the Great Lakes basin to review existing data and information and to develop appropriate recommendations to address this area.

Uniform, immediate notification is essential along with the means to quickly determine the nature and scope of an incident. To this end, a central notification and dispatch center should be established to provide a single 24-hour notification point staffed by trained personnel with access to chemical data who would dispatch response personnel in a timely manner, and notify sensitive facilities and vulnerable areas to ensure that appropriate protective actions are taken in a timely manner.

Governor Blanchard strongly supports the reviews of the national contingency plan, regional contingency plans, and oil spill contingency plans by field units with Captains of the Port Authority. This will be helpful in moving forward to identify those areas that are the most vulnerable and assess the hazards and risks that threaten those areas and take appropriate actions.

Need for Federal Actions

Governor Blanchard strongly recommends that the Coast Guard and EPA take a leadership role in assuring that the Great Lakes are as thoroughly protected. Specifically, the Joint Canada-U.S. Marine Pollution Contingency Plan for Spills of Oil and Other Noxious Substances should be reviewed. As that agreement establishes a joint response team which is responsible for the management of an emergency situation involving both jurisdictions, this is an appropriate time to review the overall adequacy and effectiveness of that plan. This is especially so given the fact that the Canadian federal government is currently conducting a review of its marine spill prevention and response capabilities. A panel established by the federal Canadian government in June is charged with reviewing domestic and international law and standards regarding tanker traffic in Canadian waters; systems to facilitate safe movements of tankers; and contingency planning and capability to respond to marine spills. That panel is to submit its report by the end of this year.

At one time, the EPA had a strong Spill Prevention Containment and Countermeasure (SPCC) inspection program for oil facilities. Reductions in funding and changes in EPA

Region V priorities have crippled this program. It is critical that oil facilities in Michigan and throughout the Great Lakes region have adequate SPCC plans in place and that these facilities are inspected and their plans are enforced. In fact, the EPA, Region V, recently reported that only 22 SPCC inspections were conducted in FY 88 and FY 89. EPA further indicated that it is only able to inspect "a very small fraction of the oil storage facilities in Michigan and the level of compliance is highly variable." (emphasis added)

We welcome the opportunity to work with this committee to insure that the EPA carries out its responsibilities.

Michigan fully supports the administration's initiative to increase funding for oil spill cleanups. But more in this area needs to be done. There is a need for strategically placed containment and cleanup equipment in amounts necessary to respond to a "worst-case" scenario. Most equipment is owned and operated by private contractors and they may lack incentive to adequately maintain the equipment. The deployment of equipment in high traffic areas (major cities and river routes) as well as remote areas such as Lake Superior should be addressed. Placement of equipment in strategic locations would reduce response time and ensure that drinking water intakes, environmentally sensitive areas, and major cities and water routes would have accessible equipment in good working order, and available for timely response, containment, and cleanup.

One important area that the EPA could exercise leadership in is that of full, uniform, and consistent implementation of Title III emergency planning requirements, particularly supporting the training of local first responders. Public sector emergency responders have not been trained to respond to oil or hazardous material spills into the waters of the Great Lakes. Training in the use or deployment of equipment specially designed for Great Lakes response is not readily available through existing state programs. Specialized techniques and knowledge are required for underwater response to retrieve hazardous materials containers, stop leaks, and/or to monitor release/toxicity levels. Funds are needed to design and implement this training.

As you know, Title III establishes a comprehensive statutory framework to implement effective hazardous material emergency planning. However, local emergency planning officials frequently cite the lack of resources available for local implementation of these federal statutory requirements which has contributed to the slow implementation of federal requirements imposed on local governments.

Michigan Actions

Governor Blanchard and the State of Michigan Emergency Response Commission have recommended state legislation to facilitate and expedite the implementation of local planning requirements under Title III, particularly the training of local first responders. Active and effective involvement by the EPA in the overall implementation of Title III responsibilities is a critical component in moving forward with hazardous material emergency planning that the public expects and law requires. Band-aid responses to environmental catastrophes are clearly unacceptable, and it is not difficult to understand the outrage experienced by concerned citizens when response to a catastrophe is slow and inadequate. We need effective proactive approaches to hazardous material emergency planning, and Title III provides a vehicle for that kind of approach. Serious support and commitment must be provided by the federal EPA to the full implementation of federal, state and local Title III responsibilities.

In addition, we are working with the state legislature to implement the state plan recommendations, and Representative Tom Alley, Chair of the House Conservation Committee, has held hearings on Great Lakes emergency preparedness. As a result, a number of important bills have been introduced, and we will continue to move forward with a bipartisan effort to enact effective legislative responses to the challenges of Great Lakes emergency preparedness and spill prevention. Governor Blanchard will work with the Michigan delegation and this committee to move forward with appropriate federal actions.

Regional Cooperation

The Great Lakes Commission and the Council of Great Lakes Governors have established a task force on emergency preparedness, chaired by Mr. J. D. Snyder of the Michigan Office of the Great Lakes. The Great Lakes Governors signed an agreement at their meeting in July committing the states to take several steps to further protect the Lakes from the potentially devastating impact of a possible oil spill or hazardous substance contamination. The Governors are committed to greater coordination efforts, and will work with the appropriate federal agencies to identify potential sources of spills, and have emphatically urged the establishment of at least one Great Lakes response center.

At the task force's first meeting on August 23, all 8 states were represented as well as the Province of Ontario. Key points identified at that meeting include the fact that the connecting channels, which are the areas of greatest potential for spills, are also some of the most populated areas of the basin. It was also emphasized that spill prevention and response in the Great lakes is characterized by the institutional complexity where 8 states, 2 provinces, numerous federal agencies, and local units of government all have varying roles and responsibilities in the area of emergency response and/or prevention.

The task force recognizes that the Regional Response Team could serve as an appropriate vehicle to achieve the goals and objectives of the Governors' agreement in July to strengthen prevention/response arrangements rather than develop an entirely new scheme or framework. At the same time, however, the effort to strengthen current arrangements must address the unique character of the Great Lakes and the acute need to protect the resource.

STATEMENT OF
TIMOTHY FIELDS, JR., DIRECTOR
EMERGENCY RESPONSE DIVISION
OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE
BEFORE THE
COMMITTEE ON GOVERNMENT AFFAIRS
SUBCOMMITTEE ON OVERSIGHT OF GOVERNMENT MANAGEMENT
UNITED STATES SENATE

SEPTEMBER 6, 1989

Mr. Chairman and members of the Subcommittee, I am Timothy Fields, Jr., Director of the Emergency Response Division in the Office of Solid Waste and Emergency Response at the U.S. Environmental Protection Agency (EPA). My responsibilities include management of EPA's emergency response program, which under the authority of the Clean Water Act and the Comprehensive Environmental Response, Compensation, and Liability Act provides emergency and other immediate responses to releases of oil and hazardous substances into the environment. I appreciate this opportunity to discuss EPA's role in preventing and responding to spills of oil and hazardous substances in the Great Lakes.

EPA ACTIVITIES RELATED TO OIL AND HAZARDOUS SUBSTANCES SPILL PLANNING AND PREPAREDNESS

The Great Lakes National Program Office (GLNPO) was established administratively in 1978 to oversee the United States's fulfillment of its obligations under the Great Lakes Water Quality Agreement with Canada. In 1987, the program was incorporated as a statutory program in Section 118 of the Clean Water Act, which directs the GLNPO to coordinate actions within EPA and with outside organizations that are aimed at improving water quality in the Great Lakes. Within EPA, line divisions in the Regional Offices implement each of EPA's media programs (i.e., surface water, ground water, solid wastes, Superfund, etc.) The role of the GLNPO is to coordinate plans and participate in the development of policies of such programs, including the development of State programs that complement the Federal program, and to identify government and private organizations that can act in solving problems. GLNPO would, therefore, work with program staff in EPA Regions 2, 3 and 5 and other Headquarters programs and to assist with these activities and to ensure that decisions reflect Great Lakes concerns and uphold the provisions of the Great Lakes Water Quality Agreement to the maximum extent possible. The National Oceanic and Atmospheric Administration has the lead responsibility for the Great Lakes Research Office. Among several responsibilities, the Research Office is to identify issues relating to the Great Lakes resources on which research is needed.

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) is used to coordinate preparedness and response activities of Federal agencies during an oil spill or hazardous substances incident. It establishes three organizational levels: the National Response Team (NRT), Regional Response Teams (RRTs), and On-Scene Coordinators (OSCs). The NRT, with EPA as Chair and the U.S. Coast Guard as Vice-Chair, is primarily a national planning, policy and coordinating body and does not normally respond directly to incidents. The NRT provides policy guidance prior to an incident, and assistance during an incident of national or international significance or when otherwise requested by an RRT. NRT assistance usually takes the form of technical advice, access to additional resources or coordination with other RRTs, but it may also involve deliberation on issues of policy.

There are thirteen standing RRTs nationwide, one for each of the ten standard Federal Regions, plus one each for Alaska, the Caribbean and the Pacific Basin. The Region 2 (NY and NJ), 3 (PA, DE, MD, VA, WV and DC), and 5

(WI, IL, IN, OH and MI) RRTs share the responsibility of coordinating response activities for the Great Lakes region in the event of a release of oil or hazardous substances, depending on the location of the incident. Each RRT maintains a Regional Contingency Plan (RCP) and has State as well as Federal government representation. EPA and Coast Guard co-chair the RRTs. Like the NRT, regional teams are planning, policy and coordinating bodies. RRTs provide guidance to OSCs in the regional plan prior to an incident, and during an incident, the RRT agencies necessary to the response (incident-specific RRT) provide assistance as requested by the OSC. If the assistance requested by an OSC exceeds an RRT's capability, the regional team may request assistance from the NRT.

Depending on the location of an oil or hazardous substance spill, either an EPA or Coast Guard official assumes the role of OSC. The Coast Guard has jurisdiction for spills in the coastal zone and commercially navigable waters of the Great Lakes and major river ports (e.g., Detroit). EPA's jurisdiction is generally over spills which threaten waters above the commercially navigable waters (i.e., primarily inland waters). Therefore, EPA would play a support role to the Coast Guard in responding to an accident in the Great Lakes region.

The OSC is responsible for monitoring the cleanup, or actually conducting the response action when the responsible party is not capable of responding, or is not performing adequately, or when the incident is beyond the capability of State or local resources. The OSC has complete Federal responsibility for on-scene actions to prevent, contain, assure cleanup of, or otherwise mitigate spills of oil or hazardous substances. An OSC's authority includes the ability to make any or all decisions necessary to protect public health and the environment.

Along with the NCP and RCPs, there are local plans. OSCs in consultation with the RRT and affected States, develop and maintain, where practicable and necessary, such plans (OSC plans) for their area of responsibility. These OSC plans must incorporate the appropriate provisions of the Regional and National Contingency Plans. Although such OSC plans are not currently required, proposed changes to the NCP would require that they be prepared. OSC plans have been prepared for all major port areas, including those in the Great Lakes.

To enhance Federal/State coordination in preparing for and responding to hazardous substances incidents, State Emergency Response Commissions (SERCs), established under the Emergency Planning and Community Right to Know Act, [also referred to as Title III of the Superfund Amendments and Reauthorization Act of 1986 (Title III)], are encouraged to coordinate their activities with the appropriate RRT through their State RRT representative.

With Canada, a Joint Marine Pollution Contingency Plan has been completed and was revised in 1986. A Joint Plan to cover the inland border area is currently under development. At the present time, EPA Regions are planning and participating in exercises related to releases of oil and hazardous materials which can affect the environment along the U.S.-Canada borders.

We estimate that in 1987, 2284 reported releases of oil and 1043 reported releases of hazardous substances occurred into the Great Lakes basin, which includes rivers that flow into the Great Lakes. In 1988, the estimated releases into the Great Lakes basin are 2166 reported releases of oil and 1107 reported releases of hazardous substances.

Since the Great Lakes are established in the NCP as one of the areas in which the U.S. Coast Guard provides the OSC for spill response and is, therefore, the lead agency in supporting spill responses in the Great Lakes, EPA's role in spill response on the Great Lakes is to provide support to the Coast Guard OSC. EPA's primary responsibility for oil spill response in the Great Lakes Basin is administering for non-transportation related facilities the oil spill prevention program that is required by section 311(j)(1)(C) of the CWA.

The NCP includes no provisions that require the development of industry contingency plans. However, the Oil Pollution Prevention regulation (40 CFR Part 112) requires non-transportation related facilities that, in the event of a spill, may reasonably be expected to cause a reportable discharge to the navigable waters, prepare and implement a spill prevention, control and countermeasures (SPCC) plan. This regulation, of course, applies to non-transportation related facilities in the Great Lakes areas. The primary focus of the regulation currently is preventing releases of oil to the navigable waters. It requires facilities to develop design and engineering plans, including the installation of certain equipment such as barriers, pumps and drains which provide secondary containment. However, in those rare circumstances in which it is impracticable to install some form of secondary containment, facility owners or operators may substitute a strong oil spill contingency plan.

Following the Ashland Oil spill on January 2, 1988, into the Monongahela River, near Floreffe, Pennsylvania, EPA established an interagency task force, which I chaired, to review the Oil Pollution Prevention regulation and other Federal oil program requirements. The Oil Spill Prevention, Control and Countermeasures Program Task Force recommended, among other things, that EPA strengthen certain discretionary language in the regulation, establish a notification system and expand the regulation to require that non-transportation related facilities prepare and implement a facility-specific oil spill contingency plan. EPA is implementing these recommendations in two phases. We expect that the Phase One regulation, which will address currently discretionary language and notification procedures, will be proposed early next year. We will also be seeking comment from the regulated industry and others concerning ways in which a contingency planning requirement may be implemented.

In the Great Lakes basin area of EPA Region 5, which encompasses the majority of the Great Lakes basin, inspections that have been conducted for compliance with the Oil Pollution Prevention regulation in the past several years are estimated to be: 159 inspections in Fiscal Year (FY) 1986, 100 inspections in FY 1987 and 42 inspections in FY 1988. In FY 1990, we project that we will conduct approximately 42 inspections. The inspections in the Great Lakes basin area generally reveal that large bulk oil storage facilities comply at a very high rate (over 90%) with the substantive requirements of the regulation. Smaller facilities have a lower compliance rate (e.g., approximately 50% compliance for secondary oil distribution facilities ranging down as low as 10% compliance for some industrial users of oil).

For transportation-related on-shore and off-shore facilities, the Department of Transportation issues regulations concerning the safe handling and storage of oil and hazardous substances. The Minerals Management Service of the Department of Interior is also responsible for certain off-shore facilities (e.g., off-shore platforms on the Outer Continental Shelf).

EXXON VALDEZ FOLLOW-UP

In the aftermath of the catastrophe in Prince William Sound, Alaska, we are doing a number of things to improve our readiness and ability to deal with future spills. First, we are taking advantage of the situation in Alaska for evaluating oil spill cleanup techniques. We are finding that the use of dispersants for shoreline cleanup has had mixed results, at best. We are also undertaking a rigorous scientific experiment to assess the potential of bioremediation: that is, biodegradation using nutrient addition to enhance the ability of indigenous microorganisms to break down the oil for shoreline cleanup. The preliminary results of this testing are encouraging. EPA will continue to monitor and evaluate this field study over several years to fully understand the performance of bioremediation.

Based on EPA's analysis of the Exxon Valdez response, the top three oil spill research priorities, are in the areas of preventing oil spills, improved cleanup technologies and environmental risk assessment. This would include development of information related to human health and environmental risk assessments, development of bioremediation technology for cleanup of shorelines, and packaging of information on oil spill prevention, cleanup, and mitigation for improved contingency planning.

Concerning preparedness, the NRT has directed that all the RRTs revaluate their contingency plans and make appropriate updates based on what we learned in Alaska. This is to be completed by November 3, 1989. The progress of these updates was discussed at a Region 5 RRT meeting two weeks ago and are on schedule. In addition, the EPA Regions 2, 3 and 5 offices are each looking at their own capabilities to respond in the event of a major emergency in the Great Lakes. EPA Headquarters is also setting up a national task force to review the EPA OSCs' readiness to deal with major oil spills and hazardous substances releases. This national task force will be making recommendations for needed improvements this December.

MICHIGAN REPORT ON EMERGENCY PREPAREDNESS

Finally, let me turn to the recent report by the State of Michigan on the preparedness for responding to oil spills in the Great Lakes. EPA believes that the report is an excellent summary of the situation in the Great Lakes area and provides some useful recommendations for further action. This report was the focus of considerable discussion at the Region 5 RRT meeting two weeks ago that was previously mentioned. One recommendation that deserves consideration is that containment and cleanup equipment should be stored or fitted on board each tanker and tank barge. This arrangement would ensure that the needed response equipment is on-scene and could be deployed quickly in the event of an oil spill.

This concludes my statement, Mr. Chairman. I will be happy to answer any questions you or the Committee members may have.

DEPARTMENT OF TRANSPORTATION

U.S. COAST GUARD

STATEMENT OF REAR ADMIRAL RICHARD A. APPELBAUM

COMMITTEE ON GOVERNMENTAL AFFAIRS

SUBCOMMITTEE ON OVERSIGHT OF GOVERNMENT MANAGEMENT

UNITED STATES SENATE

6 SEPTEMBER 1989

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE, I AM REAR ADMIRAL RICHARD A. APPELBAUM, COMMANDER OF THE NINTH COAST GUARD DISTRICT. BECAUSE THE NINTH DISTRICT IS COMPRISED OF THE GREAT LAKES BASIN FROM DULUTH, MINNESOTA TO THE ST. LAWRENCE SEAWAY, ADMIRAL YOST HAS ASKED ME TO RESPOND TO YOUR 14 AUGUST REQUEST AND TO SPEAK TO YOU TODAY REGARDING THE COAST GUARD'S ROLE IN PREVENTING AND RESPONDING TO OIL AND HAZARDOUS SUBSTANCE SPILLS IN THE GREAT LAKES. I THANK YOU FOR THIS OPPORTUNITY.

THE FEDERAL RESPONSE PROGRAM FOR THE GREAT LAKES REGION IS THE SAME AS THAT FOR THE ATLANTIC AND PACIFIC COASTS. ACTING UNDER THE AUTHORITY OF THE FEDERAL WATER POLLUTION CONTROL ACT FOR OIL SPILLS AND THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT FOR RELEASES OF HAZARDOUS SUBSTANCES, COAST GUARD PREDESIGNATED ON-SCENE COORDINATORS, OR OSC'S, INVESTIGATE REPORTS OF POLLUTION INCIDENTS OCCURRING IN OPEN WATER AND NEAR SHORE AREAS. WHERE THE RESPONSIBLE PARTY INITIATES REMOVAL, THE OSC MONITORS THE ACTIVITIES TO ENSURE THE ADEQUACY OF THE OPERATION. WHERE THE SOURCE OF THE SPILL IS

UNKNOWN, OR THE RESPONSIBLE PARTY IS UNABLE OR UNWILLING TO CONDUCT A CLEANUP, THE OSC INITIATES A REMOVAL OPERATION. IN THE NINTH DISTRICT, NINE FIELD UNITS, MOST HEADQUARTERED IN INDUSTRIAL PORT AREAS, PROVIDE THE FEDERAL OSC'S. WHILE THESE UNITS MAINTAIN A LIMITED INVENTORY OF INITIAL RESPONSE EQUIPMENT (E.G., SORBENT BOOM, SORBENT PADS, ETC.) AT STATIONS THROUGHOUT THE GREAT LAKES, THEY EMPLOY COMMERCIAL CONTRACTORS FOR THE BULK OF THE HANDS-ON CLEANUP. I SHOULD NOTE THAT THE COAST GUARD MAINTAINS TWO SPECIALLY TRAINED STRIKE TEAMS, ONE IN MOBILE AND THE OTHER IN SAN FRANCISCO, TO ASSIST OSC'S DURING SPILL RESPONSE OPERATIONS. THESE UNITS ARE PREPARED TO DELIVER AND OPERATE RESPONSE EQUIPMENT THAT MIGHT NOT BE AVAILABLE LOCALLY. BOTH THE FEDERAL WATER POLLUTION CONTROL ACT AND THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT CREATED FUNDS TO SUPPORT THESE OPERATIONS AND ESTABLISHED STRICT LIABILITY OF RESPONSIBLE PARTIES TO RECOVER GOVERNMENT RESPONSE COSTS. HOWEVER, THE EXISTING OIL POLLUTION FUND WOULD BE INADEQUATE TO PAY FOR THE CLEANUP OF A CATASTROPHIC OIL SPILL IN THE GREAT LAKES. THE FUND CONTAINED APPROXIMATELY TWO MILLION DOLLARS ON SEPTEMBER 1ST.

OF THE OIL AND HAZARDOUS SUBSTANCE SPILLS IN THE GREAT LAKES FOR THE 9-YEAR PERIOD 1980-1988, 1,210 SPILLS WERE FROM FACILITIES AND 654 FROM VESSELS. TWENTY-FIVE OF THE 44 FACILITY SPILLS OF MORE THAN 1,000 GALLONS INVOLVED OIL. SEVEN OF THE 14 FACILITY SPILLS GREATER THAN 10,000 GALLONS INVOLVED OIL. THE LARGEST SPILL FROM A VESSEL WAS A 900 GALLON OIL SPILL.

FOUR DIFFERENT PLANS GUIDE THE ACTIONS OF AN OSC ON THE GREAT LAKES. FIRST, THE NATIONAL OIL AND HAZARDOUS SUBSTANCE POLLUTION CONTINGENCY PLAN DEFINES THE INTERAGENCY ORGANIZATION AT THE NATIONAL AND REGIONAL LEVELS, ASSIGNS AGENCY RESPONSIBILITIES, AND DESCRIBES THE GENERAL PATTERN OF RESPONSE OPERATIONS. SECOND, THE REGIONAL CONTINGENCY PLAN ESTABLISHES THE GEOGRAPHIC BOUNDARY BETWEEN THE "INLAND ZONE" WHERE EPA PROVIDES THE PREDESIGNATED OSC AND THE "COASTAL ZONE", THE AREA IN WHICH THE COAST GUARD IS THE PREDESIGNATED OSC. IT ALSO ADDRESSES OTHER MATTERS OF REGIONAL CONCERN, SUCH AS A POLICY ON DISPERSANT USE. THIRD, THE LOCAL PLAN IS, AS ITS NAME IMPLIES, PREPARED BY THE LOCAL ON-SCENE COORDINATOR. THE LOCAL PLAN IDENTIFIES THOSE GOVERNMENT AND COMMERCIAL RESPONSE RESOURCES WHICH ARE AVAILABLE IN THE IMMEDIATE AREA, ASSESSES THE POTENTIAL SOURCES OF SPILLS, IDENTIFIES ENVIRONMENTALLY SENSITIVE AREAS, OUTLINES THE DUTIES OF THOSE PERSONNEL UNDER THE OSC'S COMMAND DURING A RESPONSE, AND SPECIFIES SPILL NOTIFICATION PROCEDURES, AMONG OTHER THINGS. FOURTH, IN THE EVENT THAT A SPILL THREATENS THE WATERS OF BOTH CANADA AND THE U.S., THE CANADA-UNITED STATES JOINT MARINE POLLUTION CONTINGENCY PLAN MAY BE INVOKED. THE PLAN PROVIDES THE ORGANIZATION AND PROCEDURES FOR A COORDINATED CLEANUP BY, OR THROUGH, THE ELEMENTS OF BOTH NATIONS.

AS YOU KNOW, THE PRESIDENT HAS ASKED THAT SPILL CONTINGENCY PLANS BE REVIEWED AND FINDINGS AND RECOMMENDATIONS REPORTED. AS PART OF THAT EFFORT, THE COAST GUARD HAS DIRECTED ITS OSC'S TO REVIEW THEIR LOCAL PLANS. ALTHOUGH SEVEN OF THE

NINE GREAT LAKES OSC'S HAVE IN FACT REVISED THEIR PLANS WITHIN THE LAST TWELVE MONTHS, ALL ARE PRESENTLY REEVALUATING THEIR CONTINGENCY PLANNING EFFORTS, PARTICULARLY WITH REGARD TO PREPARATIONS FOR A CATASTROPHIC (OR WORST CASE) OIL POLLUTION INCIDENT. WE EXPECT THEY WILL REPORT THAT LOCALLY AVAILABLE RESOURCES ARE ADEQUATE FOR THE SIZE OF AN OIL SPILL HISTORICALLY OCCURRING ON THE GREAT LAKES--10,000 GALLONS OR LESS--AND THAT A MAJOR INCIDENT WOULD REQUIRE ASSISTANCE OF CONTRACTORS AND COAST GUARD PERSONNEL FROM OTHER AREAS.

IN ADDITION TO THIS REVIEW OF IN-HOUSE CONTINGENCY PLANNING, THE NINTH COAST GUARD DISTRICT IS PRESENTLY PARTICIPATING IN SEVERAL REGIONAL PREPAREDNESS EFFORTS INITIATED BY OTHER PARTIES. WE ARE ASSISTING THE STATE OF MICHIGAN IN THE PREPARATION OF A REPORT ON THAT STATE'S EMERGENCY PREPAREDNESS FOR OIL AND HAZARDOUS SUBSTANCE SPILLS. AT THE REQUEST OF THE GREAT LAKES COMMISSION, WE ARE PART OF A RECENTLY CREATED TASK FORCE TO REVIEW SPILL PREPAREDNESS IN THE GREAT LAKES REGION. WITHIN THE FRAMEWORK OF THE FEDERAL REGION V REGIONAL RESPONSE TEAM, AN INTERAGENCY BODY ESTABLISHED UNDER THE NATIONAL CONTINGENCY PLAN, WE ARE ASSISTING THE STATES OF MINNESOTA AND WISCONSIN IN DEVELOPMENT OF A SPILL RESPONSE RESOURCE MANUAL FOR THE UPPER MISSISSIPPI RIVER. WHERE WE CAN, WE ARE USING THE REGIONAL RESPONSE TEAM TO COORDINATE THE VARIOUS ONGOING SPILL PREPAREDNESS INITIATIVES, THEREBY PREVENTING DUPLICATION OF EFFORT.

YOU HAVE INQUIRED ABOUT THE U.S. COAST GUARD'S PARTICIPATION IN CANADA'S REVIEW OF ITS SPILL PREVENTION AND RESPONSE PROGRAM. THE CANADIAN TASK FORCE CONDUCTING THAT REVIEW IS CURRENTLY HOLDING REGIONAL HEARINGS AND IS SCHEDULED TO BE IN THE GREAT LAKES AREA IN THE LATTER PART OF SEPTEMBER. WE HAVE NOT RECEIVED A REQUEST TO PARTICIPATE IN THIS EFFORT AND HAVE NOT BEEN NOTIFIED THAT A REQUEST IS FORTHCOMING. HOWEVER, WE DISCUSS CONTINGENCY PLANNING WITH THE CANADIAN COAST GUARD ON A ROUTINE, ONGOING BASIS AND EXERCISE THE JOINT CONTINGENCY PLAN BIENNIALLY.

PRESENTLY, THERE ARE NO OUTSTANDING PROPOSALS FROM EITHER THE U.S. OR CANADIAN COAST GUARD FOR CHANGES TO THE BILATERAL AGREEMENT FOR SPILL PREVENTION AND RESPONSE ON THE GREAT LAKES. HOWEVER, AT A RECENT MEETING TO REPORT ON PROGRESS UNDER THE U.S.-CANADA GREAT LAKES WATER QUALITY AGREEMENT, THE U.S. AND CANADIAN COAST GUARD AGREED TO CONSIDER REVISIONS WHICH MAY BE NECESSARY AS A RESULT OF BOTH COUNTRIES' ON-GOING REVIEWS.

AS YOU KNOW, ALL OF OUR FIELD UNITS ARE MULTI-MISSION. EACH VESSEL PATROL, EACH FLIGHT MISSION, FOR WHATEVER PURPOSE, IS A COAST GUARD "PRESENCE" FOR SPILL PREVENTION AND DETECTION. ALL COAST GUARD MILITARY PERSONNEL, WHATEVER THEIR DAILY TASK, ARE AVAILABLE FOR SPILL DETECTION, PREVENTION, AND RESPONSE. THE ALERT NETWORK THIS PROVIDES IS FORMIDABLE. ITS VALUE AND THE FLEXIBLE RESPONSE IT PROVIDES IS SOMETIMES NOT APPRECIATED BY THOSE WHO ARE UNFAMILIAR WITH OUR ORGANIZATION. OVER THE LAST SEVERAL YEARS, ADDED MISSIONS AND NEW PRIORITIES HAVE CAUSED US TO SHIFT PERSONNEL AWAY FROM SOME FIELD UNITS AND TO REDUCE OR

ELIMINATE CERTAIN PATROLS. AS THE COMMANDANT HAS SAID, WHILE WE ARE HOLDING OUR HEAD ABOVE WATER AS AN ORGANIZATION, SPILL PREVENTION AND DETECTION HAD ESSENTIALLY BEEN REDUCED IN THE 1980'S. POLLUTION IS YET ANOTHER REASON TO RESOLVE THE COAST GUARD'S SYSTEMIC BUDGET PROBLEM.

MR. CHAIRMAN, THIS CONCLUDES MY STATEMENT ON THE COAST GUARD'S SPILL RESPONSE PROGRAM FOR THE GREAT LAKES. I WILL BE GLAD TO ANSWER ANY QUESTIONS YOU OR THE OTHER MEMBERS OF THE SUBCOMMITTEE MIGHT HAVE.

Testimony

Presented by Ed Tennyson, Research Scientist
Minerals Management Service
Technology Assessment and Research Branch

Before the Committee on Government Affairs
Subcommittee on Oversight of Government Management

United States Senate
Washington, D.C.

September 6, 1989

Mr. Chairman, I appreciate the opportunity to testify about the research and technology program on oil spill containment and cleanup being conducted by the Minerals Management Service (MMS) of the United States Department of the Interior.

MMS has been supporting oil spill technology research and development for over a decade. For the past 12 years, MMS has maintained a formal program conducting applied research on the technology needed to support safe and clean OCS activities (this program was begun by the Conservation Division of the U.S. Geological Survey (USGS); now part of MMS). These activities include: permitting and regulating offshore oil and gas operations; reviewing and approving industry exploration, development and production, and oil spill contingency plans; conducting OCS facility accident investigations; inspecting and taking enforcement actions; and prescribing well-control training for industry personnel. Strong technological support also is required for such activities as reviewing and verifying the integrity of OCS structures and pipelines, preventing oil well blowouts, and preventing and mitigating water and air pollution.

In 1979, the USGS (now MMS) joined the U.S. Coast Guard, the U.S. Navy, the Environmental Protection Agency (EPA), and the Canadian Department of the Environment (Environment Canada), in an interagency and international oil spill response evaluation program run primarily at EPA's Oil and Hazardous Materials Simulated Environmental Test Tank (OHMSETT) facility in Leonardo, New Jersey. OHMSETT provides a very large open tank facility capable of generating waves, testing cleanup techniques, and burning oil on water and in floating ice. Since 1979, USGS and later MMS has spent $100,000 per year evaluating spill response equipment and procedures.

Since 1986, MMS has invested approximately $250,000 per year in research to improve oil spill response technologies and procedures. In 1986, MMS and Environment Canada executed a Memorandum of Understanding and began a fruitful joint research program. This program was established, in part, as a consequence of the closing of the OHMSETT facility by EPA and the cessation of oil spill response studies by the other agencies. The program with Environmental Canada has been mutually advantageous because of the shared concerns for oil spill mitigation and the complementary scientific work undertaken by each agency.

This working relationship greatly broadened the MMS program and furthered its research efforts by, for example, providing the funding, ships, aircraft, and technical support for conducting two at-sea experiments on the standardization of procedures for evaluating containment booms and the effective use of chemical treating agents. This combined program has:

- Developed the capability of using shipboard navigational radar to detect and track open ocean oil spills.

- Developed and verified a nonpolluting and cost effective test procedure to evaluate the performance of offshore oil spill containment booms.

- Initiated a program to evaluate the capabilities for burning spilled oil in-place in broken ice fields.

- Initiated a program to quantify and model the behavior and fate of burn products from in-place burning of spilled oil.

- Developed the technique of containing oil by sweeping downwind when rough weather conditions preclude effective operations in the normal upwind mode.

- Evaluated innovative containment and collection techniques for broken ice conditions.

- Performed engineering and cost studies based on the use of converted tankers to tow containment booms on each side and to suspend subsea collection devices over blowing wellheads. The tankers could store the oil, separate the water from it, and remain at sea for extended periods.

- Evaluated the capabilities of two oil spill chemical additives to significantly improve the recovery capabilities of existing equipment.
- Conducted research and engineering design of airborne laser ignition systems to ignite spilled oil in the open ocean.
- Evaluated and optimized the design of a high pressure water jet barrier for containing oil in high current areas and in broken ice conditions.
- Initiated investigations into the behavior of heavy oils, such as some of those on the California OCS. These oils tend to sink below the ocean surface but wash up in the surf zone contaminating beaches.
- Initiated investigations into improved airborne remote sensing of oil spills to determine the thickness and extensiveness of slicks.

MMS also has cooperated in the exchange of technological information with Japan, Norway, the United Kingdom, and France, through informal contacts, workshops, and technical meetings, such as the biennial Oil Spill Conference.

Consistent with its policy of conducting broad synthesis meetings on topics of concern, MMS arranged with the National Institute of Standards and Technology (NIST) (formerly the Bureau of Standards) to conduct a technical workshop in Alaska in November 1988, to present the state-of-the-art, recent research results, and to seek consensus on future research needs for oil spill responses in cold and seasonally ice-covered waters. Recognized experts submitted papers and served as session chairmen. Many of the research areas discussed at the workshop were already being addressed by the MMS research program; others will be considered in future studies. Clear opportunities for cooperative support for additional research are identified in the proceedings.

Additionally, MMS conducts research on oil spill risk analysis, reduction of hydrocarbon emissions from OCS facilities, improved blowout prevention, and the physical forces that act on oil and gas facilities in deeper waters, areas of ice and earthquake activity, high currents, and periodic extreme weather conditions.

The MMS research program brings together expertise through cooperative research arrangements and contracts in all areas of oil spill response. Environment Canada is recognized for its expertise in chemical treating agents and detection. The National Institute of Standards and Technology, our U.S. research partner, possesses expertise on in situ burning. MMS itself maintains recognized expertise in detection, mechanical containment and recovery of spilled oil, and oil spill preparedness.

Total USGS and MMS funding for oil spill response technology investigations and for evaluating equipment and procedures amounts to $3.2 million since 1979. This sum has been substantially leveraged since 1986 because Environment Canada, in effect, has matched MMS funding.

To our knowledge, since 1987, MMS and Environment Canada have been the only government agencies in North America conducting significant oil spill research and technology development programs. We believe that significant gains have been made in detecting spills, quantifying and improving the performance of open-ocean response equipment, developing new chemical treating agents, and developing the capability to burn spilled oil on the surface of the ocean.

Additional budgetary resources for oil spill technology research and development will be one of the areas given priority consideration by DOI and the Administration as part of FY 1991 budget process. We also would welcome cooperative support from other organizations in expanding this research effort. Secretary Lujan, in April, announced such support from the American Petroleum Institute, which has offered $3 million in direct financial assistance over the next 3 years.

A Review of the State-of-the-Art in Oil Spill Response Technology

Several factors should be considered when evaluating the adequacy of oil spill responses, including: sea state, weather, type of oil, size of spill, elapsed time from spill to response, presence of ice, and the level of response readiness. Adequate readiness, in turn, involves the siting of sufficient equipment and trained personnel to deal effectively with predictable spills. A major aspect of oil spill preparedness is the state-of-the-art of existing equipment and procedures, including capabilities for detection, containment, recovery, disposal, and alternative response strategies, e.g., chemical treating agents and in situ burning.

The current state of knowledge in the field and the potential for practical short-term gains may be summarized as follows:

Detection

- Oil spill detection is limited largely to visual observations which, in turn, are restricted to favorable sea and atmospheric conditions; they are totally ineffective in rain, fog, or darkness. Airborne remote sensing packages have been developed using side-looking radar, infrared, and ultraviolet technology. However, airborne sensing instruments are unable to discriminate between areas of an oil slick which are thick enough for efficient recovery and areas that are not. MMS and Environment Canada have started research on remote measurement of oil thickness from aircraft. Such a capability would allow response teams to direct collection efforts to areas that would permit the most effective and efficient oil recovery.

- MMS research has devised a method of specially tuning shipboard navigational radar and thereby permitting oil spills to be tracked in all but extremely severe sea conditions. This technique was used on three successive oil spills. Before it can be considered a reliable operational tool, however, additional research is needed to correlate oil thickness, other oil slick characteristics, and sea state with the radar presentation.

- Methods for detecting oil in ice, under conditions commonly associated with the Bering, Chukchi, and Beaufort Seas, also are being investigated. The joint MMS-Environment Canada program is evaluating applicable technologies and has identified a laser-flurosensor that can detect oil in broken ice.

- Improved understanding is needed by spill response teams to project the transport of oil on the surface as it is driven by winds and currents. In this respect, oil spill trajectory models have been developed and drifting buoys, tracked by satellites, are being evaluated to determine their ability to follow a spill.

- During several recent spills, some oil has submerged and reappeared in surf zones and on beaches. We believe that fish-finding sonar can be used successfully to track submerged oil so that effective countermeasures can be taken before the oil washes ashore. This and other techniques for tracking subsurface oil should be evaluated and may be incorporated into MMS's on going research effort.

Containment

- The effectiveness of open ocean booms for containing oil in waves over 2 to 3 feet is not well documented. Yet such wave heights are often exceeded on the OCS. The conventional wisdom is that containment booms will not effectively operate in wind speeds over 15-20 knots or at towing speeds greater than 0.5-0.75 knots. During MMS/Environment Canada experimental oil spill operations conducted in 1987 off St. John's, Newfoundland, oil was successfully contained by booms towed with, rather than against, the wind in contravention of conventional practice. This new technique resulted in successful containment in winds up to 35 knots and at towing speeds up to 1.4 knots. Further evaluation of experimental spill or spill-of-opportunity is required for operational acceptance.

- Currently, there are more than 30 different boom designs for use on the OCS. For lack of a standardized testing techniques or protocol, the relative capabilities of these booms have not been adequately quantified. MMS, together with Environment Canada, the U.S. Coast Guard, and EPA, has initiated development of an extensive test protocol that would rate the performance of containment booms without requiring the intentional spilling of thousands of gallons of oil, as in the current international practice. This protocol was evaluated and conditionally verified off Newfoundland in 1987; however, further analysis and tests are necessary. When completed, standard nonpolluting test procedures can be devised to evaluate each containment boom's performance in a range of sea states.

Recovery

- Most available offshore skimmers have been evaluated at the OHMSETT facility and elsewhere under realistic conditions. Results have shown that the skimmers operate within a range of effectiveness, i.e., oil-to-water ratio, of 50 to 98 percent.

Additional testing would be of minimal value. However, new and innovated designs for operating in ice should be evaluated and improved. MMS and Environment Canada have undertaken a joint research project to evaluate a barrier skimmer designed for ice operation.

- Evaluation of beachline cleanup procedures is planned to develop effective procedures that do not adversely affect the types of beaches found in Alaska, British Columbia, Washington, Oregon, and northern and central California,

Disposal

- Enhancement of existing techniques is required to dispose of large volumes of recovered fluids normally associated with a major oil spill. Disposal methods include on-scene storage, transportation to an acceptable disposal site, and ultimate destruction techniques. Incineration is a technique that merits accelerated research beyond current levels. Disposal techniques in cold regions also require further research.

Chemical Agents

- Chemical agents include broad categories of dispersants and nondispersants. Dispersants are intended to speed the breakup of oil slicks into droplets small enough to be acted upon by natural microbial action. Dispersants routinely have not proven effective offshore, but recent MMS/Environment Canada research indicates that dispersant effectiveness can be significantly increased by reformulating existing dispersants.
- On-going MMS/Environment Canada research has identified several nondispersing chemicals that inhibit the formation of emulsions (known as mousse), retard slick spreading, and change the physical properties of spilled oil to improve its burnability or recoverability, and thus, significantly increase oil recovery rates with existing cleanup equipment.

In Situ Burning

- The major advance in spill response in recent years has resulted from joint MMS/Environment Canada research begun in 1983, in which the limiting conditions for burning oil in the surface of the open ocean have been studied. Prudhoe Bay, Amuligak, and several other oils were evaluated to determine the effects of several physical variables--oil slick thickness, weather, sea state, wind, temperature, degrees of emulsification, and extent of ice coverage--on the percent of the oil that could be removed from the water column. The oils tested burned with 50-90 percent removal ratios, provided emulsification had not occurred. This phase of the research is completed.

- These results strongly supported the notion that in situ burning may offer the best potential for combating major oil spills and for mitigating spills in remote areas. Of utmost concern is the effect that the burning of major oil spills would have on air quality. A joint MMS/Environment Canada research effort was begun in 1985 to quantify burn products and to model the behavior of the products as a function of time and temperature.

Mr. Chairman, as I mentioned before, the reason MMS is involved in oil spill containment and cleanup research is that we are charged by Congress to assure that the Nation's OCS resources are developed economically and effectively, and done so in a manner that protects the marine, coastal and human environments. It is appropriate to note the exemplary environmental record of OCS development related to oil spills.

Compared to oil tankers, other vessels, and even natural sources of oil, offshore oil exploration, development, and production activities contribute very little of the oil found in the world's oceans and seas. A 1985 study by the National Academy of Sciences determined that transportation sources--including ship bilge discharges, normal tanker operations, and tanker accidents--accounted for about 45 percent of all the oil in the sea. Municipal and industrial wastes and runoff from bordering lands accounted for about 36 percent, and natural sources, such as seepage from ocean bottom, contributed roughly 8 percent. By comparison, offshore oil production accounted for only 2 percent.

Safety and Oil Spill Prevention are Top Priorities in the OCS Oil and Gas Program

Three serious incidents--the Santa Barbara blowout (Note 1) and two major blowouts and associated fires in the Gulf of Mexico, occurred sequentially in 1969 and 1970--heightened public interest in the conduct of offshore oil and gas operations.

This led to an expanded Federal role in the regulation of OCS activities. New regulatory requirements pertaining to drilling procedures, subsurface safety valves, platform safety devices, and oil and gas pipelines were instituted. The Federal Government's offshore inspection force was increased tenfold; a detailed review and approval process was established for operational plans; and training requirements, including those for oil spill responses, were implemented for drilling and production personnel.

The OCS oil spill record improved significantly once these policies were in place. Since 1970, there have been only 10 oil spills in excess of 1,000 barrels on the OCS and none is known to have reached shore or to have caused any significant environmental damage. There has not been a single spill of that size from loss of well control during this period. We believe that this is due to strong regulations, careful plan reviews, and followup inspection requirements.

Six of these spills were from pipelines, including four that were damaged by anchors or trawls; two resulted from storage tank ruptures on platforms; one occurred while fuel was being transferred from a barge to a drilling rig; and one resulted from a barge sinking.

OCS Oil Spills Typically are Smaller, More Readily Contained, and More Quickly Cleaned up than Tanker Spills

It is important to distinguish between oil spills resulting from tanker accidents and spills resulting from offshore oil and gas operations. Although tanker loading and unloading operations are concentrated in port areas, tankers travel worldwide and carry a wide variety of hydrocarbons. Tanker spills, thus, can occur almost anywhere--harbors, rivers, estuaries, new coastlines, and on the high seas--and can, and unfortunately sometimes do, involve large volumes of oil spilled within a relatively brief time. In the Exxon Valdez accident, about 260,000 barrels (11 million gallons) of crude oil were spilled within several hours. By comparison, a major 5,000 barrels per day blowout would require over 50 days to release the same amount of oil.

Many different types of petroleum commodities may be carried on tankers, including crude oil, heavy and light fuel oils, diesel fuel, jet fuel, gasoline, and lubricating oils. Some carry a single product, while others may carry several different products in separate compartments. Tankers or barges may drift after rupture, causing the oil to be spread over an even larger area. And because tanker and barge spills can occur almost anywhere, it is more likely that spills will occur far from staged cleanup equipment and that there will be insufficient information available about air and water currents.

OCS spills, by contrast, are confined to fixed locations where ocean currents, wind patterns, and for production operations, oil characteristics, are well known. Thus, oil spill response systems can be tailored to accommodate maximum anticipated spill rates from a particular facility, and required response times can be established consistent with predicted oil slick drift rates toward the shore or other sensitive resources. Prior knowledge of the specific hydrocarbons stored on an offshore facility (typically lube oil and diesel fuel) and the characteristic of the crude oil being processed there facilitate the choice of correct equipment and other resources to respond to spills.

There have been eight spills of more than 100,000 barrels in U.S. waters: seven were from tankers, and one was from an OCS facility. The lone OCS spill on that list occurred in 1967, before Federal oversight of the OCS was strengthened by promulgation of a comprehensive set of safety regulations in 1971, and provisions of the National Environmental Policy Act and the Outer Continental Shelf Lands Act Amendments of 1978.

Geological Characteristics of Most OCS Wells Militate Against a Major, Prolonged Oil Well Blowout

Currently, the Nation's OCS oil and gas production is confined to the Gulf of Mexico and the Pacific Ocean offshore California. There are only seven OCS platforms with at least one well producing more than 3,000 barrels per day. The overall average flow rate from OCS wells is about 180 barrels per day, ranging from 10 to more than 8,000 barrels per day. As I stated before, a major 5,000 barrels per day blowout, for example, would require over 50 days to release the amount of oil released by the Exxon Valdez in a few hours. With longer times and lower flow rates, substantially more oil could be recovered following an OCS spill than from a typical tanker spill, and much more time would be available to mobilize for an extended cleanup.

Two major OCS producing areas have geologic properties that militate against a major prolonged oil blowout.

- The Western Gulf of Mexico is predominantly a natural gas producing area, and gas blowouts, while extremely dangerous, produce little or no ocean pollution.

- Southern California reservoirs are characteristically low pressure and produce high-viscosity crude oils. In the absence of faults and fractures that communicate with the surface, as in the Santa Barbara spill, this combination would lead to little or no sustained flow following a blowout. About 90 percent of the 266 producing wells off the California coast normally require gas lift or hydraulic or electric pumps to maintain flow; systems that can be shut off immediately in the event of a spill.

OCS Activities Are Not Only Safe, They Are Clean

Between 1971 and 1988, oil production from OCS wells was nearly 6.2 billion barrels, or more than 940,000 barrels per day. During this same period, 1,768 oil spills of one barrel or more were recorded on the OCS, resulting in a discharge of 92,656 barrels, or 114.1 barrels per day. The amount of oil spilled compared to the amount produced was about 15 parts per million--roughly equivalent to spilling a quarter of a teaspoon of gasoline from a 20-gallon automobile fuel tank.

Yet, as commendable as the record may be, we cannot afford--and will not tolerate--complacency.

MMS Emphasizes Oil Spill Prevention

MMS activities on the OCS are aimed at assuring operational safety and preventing pollution, with major emphasis on preventing oil spills. To this end, MMS inspects all OCS oil and gas operations at least once each year, and more if necessary, for compliance with stringent safety and pollution prevention regulations. During a recent 3-year period, MMS conducted nearly 31,000 separate inspections of offshore platforms, drilling rigs, and other facilities. Each production or drilling inspection checked between 50 and 300 different safety and pollution prevention items, depending upon the type and size of the operation. This amounted to inspecting more than 1,548,000 separate items.

Of the more than a million-and half items inspected, over 99 percent were in compliance. There were 11,398 incidents of noncompliance for which MMS issued citations. Most noncomplying items were corrected quickly, usually within a few days. In those relatively few instances where the violations posed "a treat of serious, irreparable, or immediate harm or damage to life (including fish and other aquatic life), property, and mineral deposit, or the marine, coastal, or human environment", (Note 2), MMS ordered suspension of operations on individual components, such as separate compressors or valves, or suspension of drilling or production operations.

During this 3-year period, MMS ordered over 4,300 individual components shut down. In more serious cases, drilling operations were stopped 407 times, and production was halted 320 occasions. Current estimates indicate that offshore drilling operations typically cost the operator between $100,000 and $150,000 per day. The costs associated with shutting down an offshore production platform depend in large part on the level of production.

There are other situations, however, where MMS inspectors may detect violations that are of such significance as to warrant harsh penalty, but not as harsh as suspension of operations. For such cases, the OCS Lands Act provides the authority to impose substantial civil penalties. MMS's ability to impose such penalties was impaired, however, by a 1983 Federal District Court decision. Under the rulings, the Government is required to give the offending operator notice of failure to comply and reasonable time for corrective action before imposing a civil penalty. A review of this situation is underway.

However, even with this limitation, there have been no instances where an operator has failed to correct a violation within the allotted time, hence, with two notable exceptions, no civil or criminal penalties have been sought. In 1988, Texaco was fined $750,000 in a criminal case that involved Texaco's knowing failure to perform a required test of a blowout preventer and falsification of records. Earlier this year, Tenneco settled a civil suit for $5 million after MMS detected unlawful flaring of natural gas from a Tenneco offshore platform. The settlement covers royalties and interest due the Government, as well as payments in lieu of further prosecution of administrative, civil, or criminal sanctions.

As you can see, MMS has done a great deal to see that its programs are part of the solution and not part of the problem relating to oil spills.

Mr. Chairman, that concludes my prepared statement. I would be happy to respond to any questions that you or Members of the Subcommittee may have.

Notes:

1. The Santa Barbara blowout, which occurred in 1969, released about 77,000 barrels (3.2 million gallons) of crude oil over a period of several months. (A blowout is an uncontrolled release of oil or gas from a well.)

2. 30 CFR 250.1(b)(2).

EXPANDED TECHNOLOGY ASSESSMENT AND RESEARCH ON OIL SPILL RESPONSE

A 3-year, $6 million program to attain stated technical objectives to significantly improve the response capabilities of open ocean oil spills.

May 2, 1989

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1. State of the Art in Oil Spill Containment and Cleanup

The state of the art is unsubstantiated. Proper response to an oil spill requires prompt and accurate identification and notification of the nature of the spill, together with a timely response effort consisting of proper personnel, equipment, vessels, and aircraft in sufficient numbers. Operational experience reveals that one or more of these factors is usually lacking. With regard to the technology of equipment and procedures, the subject of this paper, the state of the art is somewhat obscure as a result of undocumented manufacturers' claims, unquantified opinion, and techniques which have not been adequately tested.

There are three general methods available for response.

a. Oil spill containment booms - Certain booms, such as the U.S. Coast Guard skimming barrier and the Norwegian NOFO boom are considered satisfactory for open ocean response because of their performance capabilities in fairly rough seas as containment barriers which prevent circulation of oil above and beneath, and because of their structural integrity. Most booms are not as servicable, and these and all other booms need to undergo standard evaluation tests before being considered as part of an MMS accepted oil spill contingency plan.

b. Skimmers - Over the last two decades, many types of skimmers have been developed, tested, and even deployed in the removal of spilled oil contained within booms. Some of these specially designed and configured boats or floats employ a weir over which the encountered surface oil with entrained sea water flows on its way into a tank or suction hose. Other types use rotating mops, belts or ramps to sponge-up encountered oil and to squeeze it into a tank and ultimately into a suction hose. Some skimmers appear to work well but are severely volume limited for large spills. Others don't appear to perform.

c. Oil Treatment Agents (nondispersants) - These agents are for the purpose of modifying the physical properties of oil to enhance its collection or its burning in situ. One agent tested over the past 2 years, trade name "Elastol", holds the oil together, making it much easier to retrieve from the belly of booms or to burn. Another agent was recently tested and found to be of value in deterring spilled oil from emulsifying, a situation resulting from wave action mixing of water and oil. Emulsified oil won't burn and is difficult to clean up.

d. Dispersants - Many chemical formulations have been devised over the years to disperse or dissolve oil so that it cannot coat beaches and seabeds. Much research has been accomplished and many tons of dispersants have been dropped from the air and by ship or boat with very controversial results; some scientists rate them as almost useless.

e. Burning - Burning of oils as an alternative to retrieval has gained greatly increased acceptance in the scientific community over the past several years as a result of laboratory and field testing. Burn efficiencies for fresh or weathered crude oil, which has not been emulsified, are about 80-95 plus percent. Initial slick thicknesses need to be at least 3mm. Water temperatures are not important though burning of the many pools and wind rows of oil can require numerous ignitors. Oil may be burned in broken ice fields, within fireproof containment booms, or if thick enough, in an unconstrained condition.

2. Background of MMS Oil Spill Response Research

Until about 3 years ago a cooperative Government agency program to evaluate spill response equipment and procedures centered its operations at the Environmental Protection Agency (EPA) facility, Leonardo, New Jersey. This facility known as OHMSETT (Oil and Hazardous Materials Simulated Environmental Test Tank) tested booms, skimmers, burning, etc. Contributing Agencies in addition to the EPA were the U.S. Coast Guard (USCG), U.S. Navy, Environment Canada (EC) and MMS. In 1986, MMS initiated a program of spill response research in addition to the evaluation work at OHMSETT. Also, in 1986 all Agencies except MMS and EC withdrew OHMSETT support, and within the next year or so the facility was closed. In 1986, MMS and EC entered into a combined research effort, signing a memorandum of understanding to conduct research on oil spill prevention and response technologies. This working relationship greatly broadened the MMS program and furthered its research efforts by, for example, providing the funding, ships, aircraft, and technical support for conducting two, at-sea experiments on the standardization of procedures for evaluating containment booms, the effective use of chemical treating agents and the detection of spills by use of shipboard radar.

This combined program has:

- Developed the capability of using shipboard navigational radar to detect and track open ocean oil spills.
- Developed and verified a nonpolluting and cost effective test procedure to evaluate the performance of offshore oil spill containment booms.
- Initiated a program to evaluate the capabilities for burning spilled oil in-place in broken ice fields.

- Initiated a program to quantify and model the behavior and fate of burn products from in-place burning of spilled oil.
- Developed the technique of containing oil by sweeping downwind when rough weather conditions preclude effective operations in the normal upwind mode.
- Evaluated innovative containment and collection techniques for broken ice conditions.
- Performed engineering and cost studies based on the use of converted tankers to tow containment booms on each side and to suspend subsea collection devices over blowing wellheads. The tankers could store the oil, separate the water from it, and remain at sea for extended periods.
- Evaluated the capabilities of two oil spill chemical additives to significantly improve the recovery capabilities of existing equipment.
- Conducted research and engineering design of airborne laser ignition systems to ignite spilled oil in the open ocean.
- Evaluated and optimized the design of a high pressure water jet barrier for containing oil in high current areas and in broken ice conditions.
- Initiated investigations into the behavior of heavy oils, such as some of those on the California OCS. These oils tend to sink below the ocean surface but wash up in the surf zone contaminating beaches.
- Initiated investigations into improved airborne remote sensing of oil spills to determine the thickness and extensiveness of slicks.

3. Major Objectives Attainable in 3 Years by Expanding the MMS-EC Program with the Addition of $6 million.

It is expected that the following objectives will be attainable during the 3-year period or substantial progress made toward that end. In addition, it is assumed that the $6 million expansion is above the existing resources of the combined MMS-EC program and that the EC program continues to obtain contributory support including ship services of the Canadian Coast Guard and the financial support of the Canadian oil industry. Appendix 1 is a cost summary which shows MMS base program funding since FY 1986 and its project application to the expanded budget.

- Spill Detection - For strategic and tactical purposes in responding to an oil spill it is necessary to know the location of the spill and where the largest gains can be made in retrieving the oil. The combined use of the airborne thickness sensor, (Budget Item 2 in the following section), the laser fluorosensor (Budget Item 2), and the evaluation of shipboard navigational radar (scheduled for July 1989 under the current MMS research budget) will provide significantly increased knowledge to the response team.
- Chemical Treating Agents - (nondispersants) This category is considered to have high potential for improving existing response technologies when used in combination with containment booms or with burning. Chemical compounds other than those mentioned in Section 1 will be evaluated and guidelines for their usage determined. See Budget Item 6. It is anticipated that significant gains can be made but it is noted that the EPA must permit the operational usage of these chemicals on a timely basis.

- Dispersants - As pointed out in Section 1, results from the application of dispersants are highly questionable. However, it is possible that compounds can be formulated which will have substantially more affinity for dissolving oil than for mixing into the water. In Budget Item 6, improved dispersants will be sought and evaluated.
- Standardized Test Procedures for Booms - This project is fundamental to assuring that capable equipment is approved for use in oil spill contingency plans. Budget Item 8 provides the necessary funding to complete the current MMS-EC project, the development of the test protocol for industry to comply with.
- Burning of Spilled Oil - Burning of oil by itself or after chemical treatment, either contained within fireproof booms, constrained by tidal currents or by broken ice, or unconstrained (if thick enough) is indicating the greatest single potential for technical improvement of spill response. Budget Item 1 accelerates the present MMS-EC work to evaluate and corroborate at large scale and at sea the results obtained in the laboratory. In addition, the behavior and fate of the products of combustion have to be verified. As in the use of chemicals, burning must be permitted by the EPA and USCG on a timely basis. This objective is attainable in 3 years with accelerated funding.
- Behavior of Heavy Crudes - Budget Item 10 provides accelerated funding to address the behavior of heavy crudes, such as some produced off California which submerge and are found later washed ashore. Within the 3-year program, it is anticipated that

substantial progress can be made and that methods for oil detection and retrieval can be identified and tested. But within that timeframe, a complete satisfactory solution to the heavy crude problem is not perceived to be achievable.

- Beachline Cleanup - This project, Budget Item 4, addresses the need to improve the technology for cleaning up oil which has washed ashore. The project will consist of a field study to examine the application of various technologies, and within 3 years will be able to quantify problems in technical terms and present an analysis of the cost-effectiveness of feasible solutions.

4. Proposal to Expand the Present MMS-EC Program to Meet the 3-Year/$6 Million Objectives

COST SUMMARY

Item	Topics	Year 1	Year 2	Year 3
1	Quantify pollution tradeoffs as a result of in situ oil spill burning	$ 750K	$ 750K	$ 250K
2	Development of an airborne oil thickness sensor	125	60	50
3	Optimization of an innovative high-speed water jet containment boom	75	--	--
4	Development of nondamaging beachline cleanup techniques	250	125	100
5	Evaluation of an open ocean Finnish skimmer	50	50	--
6	Chemical treating agent improvements			
	A. Nondispersants	85	575	650
	B. Guidelines	30	30	--
	C. Dispersants	65	65	200
7	Development of a laser fluorosensor for oil detection	45	45	250
8	Development of a standard test procedure for offshore containment booms	45	--	--

9	Development of a portable oil analysis kit	90	--	--
10	Investigation into physical behavior of oil	90	150	350
11	Reactivate and conduct research at the oil spill research facility (OHMSETT)	300	150	150
	Total	$2000K	$2000K	$2000K

23 299 227

Item: 1

Title: Quantify Pollution Tradeoffs as a Result of In-Situ Oil Spill Burning.

Cost: Year 1 $750K
Year 2 $750K
Year 3 $250K

Description: The investigation into the in-situ burning of crude oils began at full scale in 1983 at the OHMSETT facility where a variety of oils were successfully burned. The effects of oil type, water temperature, presence of ice, oil weathering, winds, and degree of emulsification on the burnability of oils were evaluated. Air pollution was subsequently investigated at intermediate scale in the laboratory. Airborne pollutants were quantified and the data were used in conjunction with a sophisticated Department of Defense computer model to predict the behavior and fate of pollutants resulting from this response technique. Results indicate that 50 to 99 percent of oil can be removed under open-ocean conditions, assuming that the initial slick is thick enough to support combustion (at least 3mm) and that the oil is not extensively emulsified. Pollutant concentrations must be quantified in larger burns as a preliminary step to field trial verification. Instrumentation and a valid sampling protocol also need to be developed prior to field verification.

Time Lines: Year 1 - Conduct larger scale evaluations and develop the required instrumentation and sampling protocol.
Year 2 - Conduct field verification. Year 3 - Analyse results and conduct intermediate-scale quantification of pollutants resulting from burning other types of oil.

Item: 2

Title: Development of An Air-Borne Oil Slick Thickness Sensor

Cost: Year 1 - $125K
Year 2 - $60K
Year 3 - $50K

Description: Current remote sensing techniques cannot discriminate between some oil slicks which are thick enough to recover or burn and those which are not. Therefore existing systems are of limited value. This project continues laboratory investigations and development of a flyable breadboard system to allow airborne oil spill thickness measurements. Specifically, the system makes use of a low power laser in conjunction with existing airborne UV and IR oil detection systems. The laser is aimed at the center of the sensor field and periodically fires at the slick causing a low level localized warming of the fluid surface. Oil and water have very different thermal properties so that the spreading rate of the heat eminating from the laser is indicative of slick thickness. This thickness measurement capability enables aircraft to direct cleanup operators to concentrate on thicker portions of a slick, thus maximizing the effectiveness of conventional mechanical cleanup, in-situ burning or the application of chemical treating agents.

Time Lines: This project is in its first year at existing funding. It is anticipated that, as a result of the program expansion, 2 years will be required to complete laboratory testing and development of a flyable breadboard system. Field testing in conjunction with other field verification projects is anticipated in year 3.

Item: 3

Title: Optimization of an Innovative High Speed Water Jet Containment Boom for High Currents/Ice Areas

Cost: Year 1 $75K
Year 2 -0-
Year 3 -0-

Description: This project will optimize the design of an innovative oil containment boom for high current and ice-infested areas. The boom uses high pressure water jet sprays to herd or direct oil toward skimmers. It is in the final phase of evaluation and has proven effective under currents as high at 3.0 knots and in the presence of ice. In both of these situations, the boom has exceeded the capabilities of other existing technologies. Pump and pressure requirements to operate the high pressure water jets must be optimized and evaluated for maximum efficiency.

Time Lines: This project is expected to be completed in 1989 under the expanded research program.

Item: 4

Title: Development and Evaluation of Nondamaging Beachline Cleanup Techniques.

Cost: Year 1 $250K
Year 2 $125K
Year 3 $100K

Description: Existing cleanup techniques for beaches include washing with steam or high pressure water, removal of the substrate with heavy construction equipment, chemical surface washing, incineration, and the use of manually deployed sorbent materials. To date, no studies have been accomplished to correlate cleanup effectiveness with the environmental damage caused by cleanup techniques. No evaluations have been conducted of the effectiveness of minimizing biological damage to beaches characteristic of the Pacific coastline from southern California to the Aleutian chain. This project attempts to establish this correlation.

Time Lines: With the research program expansion, it is anticipated that this current project can reach field verification by 1991 and subsequent beach type evaluation in 1992.

Item: 5

Title: Evaluation of an Innovative "Finnish Oil Skimmer" for Ice-Infested Waters

Cost: Year 1 $50K
Year 2 $50K
Year 3 ----

Description: Current skimmer technology for recovering oil in broken ice conditions is practically nonexistant. However, modifications to existing skimmer systems have improved their efficiencies in cold conditions where ice is not present. This project will cooperatively evaluate the innovative "Wartsilla Skimmer" in a range of ice conditions and with different oil types. Canadian participation is expected to cover the majority of the costs associated with this project. The skimmer makes use of every concept which has proven most efficient for skimming oil in broken ice conditions.

Time Lines: Assuming international cooperation and the funding for the accelerated program, the skimmer is planned to be evaluated by the end of 1990.

Item: 6a

Title: Chemical Treating Agents Development of Improved Nondispersant Chemicals.

Cost: Year 1 $85K
Year 2 $575K
Year 3 $650K

Description: Millions of dollars have been spent in the past 20 years on the development of dispersant chemicals with highly questionable results. The joint MMS-Canadian research effort has identified two chemicals which inhibit the formation of emulsions, break down existing emulsions, or change the adhesiveness of spilled oil. All of these changes significantly increase conventional mechanical recovery capabilities and burnability. The project will permit continued and accelerated research to identify additional chemicals to improve response capabilities using existing technologies and procedures. Field trials using spills of opportunity will also be possible to verify laboratory evaluations.

Time Lines: The search for chemical treating agents is considered a high priority and will continue. At least six chemical additives have shown promise based upon laboratory evaluations. The first year, under the accelerated program, represents a modest increase in laboratory research. Years 2 and 3 will involve field evaluations on spills of opportunity including intentional research oil spills.

Item: 6b

Title: Chemical Treating Agents - Development of Use Guidelines.

Cost: Year 1 - $30K
Year 2 - $30K
Year 3 - ---

Description: To develop and promulgate a nondispersant chemical treating agent manual to identify procedures and conditions for field use in optimizing agent effectiveness.

Time Lines: Two years to completion.

Item: 6c

Title: Reformulation of Dispersants

Cost: Year 1 $65K
Year 2 $65K
Year 3 $200K

Description: Considerable controversy exists over the effectiveness of existing chemical dispersants. Recent literature indicates that in the past 107 instances in which dispersants have been used on open-ocean oil spills, (where effectiveness measurements were conducted), the dispersants have shown low or no effectiveness. Joint MMS-Canadian research into the reformulation of dispersants to improve their effectiveness is in its second year. Results indicate that effectiveness can be improved as measured by laboratory measurement techniques. Field verification at spills of opportunity, including research spills, must be completed before these modified dispersant formulations are accepted.

Time Lines: Assuming major logistical support from Canada and accelerated program funding it is expected that laboratory reformulations and evaluations will continue for 2 years and initiation of field verifications beginning in 3 years will continue intermittantly.

Item: 7

Title: Development of a Laser-Fluoro Sensor for Detection of Oil
in Ice and Open Water

Cost: Year 1 $45K

Year 2 $45K

Year 3 $250K

Description: No current remote sensing technology exists to detect oil in ice. The laser-fluoro senser concept has been under evaluation in the laboratory for two years as part of the joint MMS-Canada research effort. The sensor has been successful in detecting oil in ice under laboratory conditions. Further evaluation is necessary and will be conducted under the accelerated research program during years 1 and 2.

Time Lines: Laboratory evaluations are expected to continue for 2 years under the accelerated program and field evaluations are scheduled in year 3 in conjunction with field trials for other projects.

Item: 8

Title: Development of a Standard Test Protocol for Evaluation of
Open-Ocean Containment Boom Performance

Cost: Year 1 $45K

Description: No standards exist for the performance of oil spill response equipment. Establishment of a standard nonpolluting, cost-effective test protocol is necessary before MMS can adopt performance standards. A nonpolluting and cost effective standard test procedure for evaluating the performance of open ocean containment booms has been under development since 1983. Development began in the test tank at OHMSETT, progressed to full scale deployment in the open ocean and in 1987 was verified off Newfoundland. Expansion of the research program will allow for analysis and completion of the standard test procedure (protocol).

Time Lines: The test protocol will be finaled in year one and forwarded to the American Society for Testing and Materials (ASTM) for review and adoption. Upon promulgation by ASTM as a test standard, the MMS may incorporate the test protocol as part of new performance standards for offshore oil spill containment booms.

Item: 9

Title: Development of a Portable Oil Analysis Kit for Responders

Cost: Year 1 $90K

Description: Responders initially are required to decide which response strategies will be the most efficient for use on a given spill. Usually little specific information exists early in a spill event to aid in the decision process. A portable test kit which will provide on-scene personnel with necessary physical and chemical characteristics of the spilled oil is necessary for optimization of the spill response. This project develops an analysis kit which will allow data to be gathered on pertinent characteristics such as pour point, vapor pressure, dispersability, viscosity, flash point, etc. The kit would become a standard response item.

Time Lines: This project is in its second year. The accelerated program budget would allow the development to be completed in year 1.

Item: 10

Title: Investigations into the Physical Behavior of Spilled Crude Oils

Cost: Year 1 $ 90K
Year 2 $150K
Year 3 $350K

Description: An understanding of the behavior and fate of spilled oil is necessary in designing an adequate spill response. Trajectory analyses have been routinely done before leasing and after major spill events. However, an understanding of the changes in physical properties of spilled oil over time usually does not exist. In at least five recent oil spills, oil has significantly impacted beachlines when the oil was not observed seaward of the surf zone. This project will accelerate the two year old joint MMS-Canada research effort to quantify the effects of various forms of weathering on the behavior of the oil. Primarily density changes may result in submergence of the slick or rapid change in spreading rates. Atypical oils such as those off of southern California behave very differently from "traditional" crude oils. Submerged oils require different detection and response techniques than do surface slicks. These countermeasures can be developed and optimized to address specific oils once the behavior of oil can be modeled.

Time Lines: Continued laboratory investigations are anticipated under the accelerated program for the next 2 years with field verification beginning in the third year.

Item: 11

Title: Reactivate and conduct research at the U.S. Navy Test Facility (OHMSETT) at Leonardo, New Jersey.

Cost: Year 1 $300K
Year 2 $150K
Year 3 $150K

Description: The only spill response test facility in the United States was closed by the Environmental Protection Agency in 1987-88. The MMS and Canada have jointly sought a replacement facility in Canada. The results indicate that three Canadian test tanks are available to accommodate specific test programs but none has the capabilities of OHMSETT. Costs for conducting tests of innovative response technologies and procedures in Canada will be substantially higher than OHMSETT because of necessary facility modifications. Tank testing is used as a full scale evaluation method before field verification is attempted. Tank testing offers an environmentally safe method for tests which otherwise would require the risk of open ocean pollution. Approximately 95% of what is known on response equipment performance has been learned at OHMSETT. Recent negotiations with the U.S. Navy, which now owns OHMSETT, indicate that the facility could be economically reactivated within 6 months. Most of the other projects in this program will be partially conducted at a test tank facility.

Time Lines: The test facility can be reactiviated within 6 months of expansion of the program. Continual access to the facility is needed for phased research.

5. Organizational Plan

At this writing it has not been fully determined which organizations will be the funding participants of the $6 million/3 year program. However, it is understood that the American Petroleum Institute (API) will provide $3 million of the $6 million. MMS, in addition to its $3 million, will continue to provide $380K per year of its base research funding and EC will be contributing $650K (Canadian) per year. EC has under consideration about a $1 Million (Canadian) increase for its spill response budget.

The EPA may be contributing about $200-250K to support some of the projects listed above, such as beachline cleanup.

Whatever the final makeup of the participants, this sort of participatory arrangement is normal to the MMS research program (Technology Assessment and Research Branch) where projects are referred to a technical steering committee comprising technical representatives of participatory agencies or companies. In the case of the expanded oil spill response research program, experience with the contributing agencies to the evaluation work at OHMSETT, (as related in Section 1), indicates that the members of the technical steering committee will probably oversee all projects. We will simply have to wait until discussions with other potential funding participants reveal their interests. Will they agree with the MMS proposed plan? Are they interested in only supporting specific projects? Do they want to divert from the plan? Details of organization will have to await these considerations.

Physical facilities for analysis and testing are in place and expeditious funding methodologies are available.

o Physical testing will be accomplished at the OHMSETT facility which is the only facility of its type in North America. The U.S. Navy, which now owns the facility is arranging to lease it to a private contractor who will refurbish it for use. Thus, any agency or company can contract for services. At-sea testing is expected to continue through cooperation with Environment Canada and the Canadian Coast Guard.

o Burn testing will be continued at the Center for Fire Research of the National Institute of Standards and Technology (NIST) (formerly the National Bureau of Standards). The NIST can receive funding from any agency or company and is particularly interested in this work as part of a larger effort to quantify the effects of a nuclear winter which might result from a series of detonated nuclear bombs. In this accelerated schedule very large scale laboratory testing will probably be accomplished in a facility of the Japanese who are cooperating with NITS in quan-tifying the results of large-scale liquid hydrocarbon burns.

o Chemical agents resulting from in-situ burns will continue to be analysed in the laboratories of Environment Canada. The Canadians probably will desire that all funding be processed through the MMS. The EC is desirous of continuing the stable and satisfactory relationship it has had through the memorandum of understanding with MMS.

- APPENDIX -

MMS OIL SPILL RESPONSE TECHNOLOGY RESEARCH

	*** Present TA&R Oil Spill Response Technology Program				*Expanded Program		
	MMS FY 86	MMS FY 87	MMS FY 88	MMS FY 89	FY89 Yr 1	FY90 Yr 2	FY91 Yr 3
1. In situ Burn	225	90	155	125	125 + 750	125 + 750	125 + 250
2. Thickness Sensors	-	-	-	35	35 + 125	35 + 60	35 + 50
3. Water Jet Boom	-	35	-	-	75	-	-
4. Beach Line Cleanup	-	-	25	25	25 + 250	25 + 125	25 + 100
5. Recovery of Oil	-	-	-	-	50	50	-
6. Chemical Treatment	20	80	-	10	10 + 180	10 + 670	10 + 850
7. Fluorosensor	-	-	-	20	20 + 45	20 + 45	20 + 250
8. Standard Test Procedures	115	45	-	-	45	-	-
9. Oil Analysis Kit	-	-	-	-	90	-	-
10. Physical Behavior of Oil	85	40	105	65	65 + 90	65 + 150	65 + 350
11. OHMSETT Facility	100	**100	**100	**100	100 + 300	100 + 150	100 + 150
TOTAL	$545K	$390K	$385K	$380K	$380K + $2000K	$380K + $2000K	$380K + $2000K

*Includes MMS Base FY89, 90 of $380K; MMS Reprogramming of $1,000K; Non-Government Funds of $1,000K.

**OHMSETT facility closed by EPA. Funds used to locate new facility and determine needed modifications, run Arctic Oil Spill response Technology Workshop, evaluate a Laser System for igniting oil, and develop standard procedures for equipment testing.

***Begun within the Technology Assessment and Research (TA&R) Program in FY 1986.

Note (1) Present and Expanded programs are predicated on continued cooperation with Department of the Environment, Canada (MOU 1986).

Note (2) Objectives of expanded program are predicated on 3 years funding at the enhanced level.

TESTIMONY FOR LANGDON MARSH
FIRST DEPUTY COMMISSIONER
OF THE
NEW YORK STATE DEPARTMENT OF
ENVIRONMENTAL CONSERVATION

BEFORE THE

UNITED STATES SENATE
COMMITTEE ON GOVERNMENTAL AFFAIRS
SUBCOMMITTEE ON
OVERSIGHT OF GOVERNMENT MANAGEMENT

SEPTEMBER 6, 1989

GOOD MORNING MR. CHAIRMAN. I AM LANGDON MARSH, FIRST DEPUTY COMMISSIONER OF THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION. ON BEHALF OF COMMISSIONER THOMAS C. JORLING, I AM PLEASED TO ACCEPT YOUR INVITATION TO TESTIFY TODAY REGARDING THE PREVENTION OF AND RESPONSE TO SPILLS OF PETROLEUM AND HAZARDOUS SUBSTANCES ON THE GREAT LAKES. ACCOMPANYING ME IS THOMAS QUINN, DIRECTOR OF NEW YORK STATE'S SPILL RESPONSE PROGRAM, WHOSE PRESENCE ATTESTS TO THE INVOLVEMENT OF THE DEPARTMENT'S FRONT LINE SPILL RESPONDERS IN THE PREPARATION OF MY TESTIMONY.

THE TOPICS POSED BY THE SUBCOMMITTEE IN ITS INVITATION ARE TIMELY AND CRITICAL TO ASSESSING NATIONAL PREPAREDNESS AND CHARTING A COURSE OF ACTION TO A HIGHER STATE OF READINESS. SINCE THE FOCUS OF TODAY'S HEARING IS THE GREAT LAKES, I WILL EMPHASIZE THE UNIQUE NEEDS AND CHARACTERISTICS OF THESE VITAL WATERBODIES.

NEW YORK HAS COASTLINES ON TWO OF THE GREAT LAKES, ERIE AND ONTARIO, AND SHORELINES ON TWO CONNECTING CHANNELS, THE NIAGARA AND ST. LAWRENCE RIVERS. EACH OF THESE WATERBODIES PRESENTS QUITE

DIFFERENT SITUATIONS FOR PLANNING AND RESPONSE. WE CONSIDER SUCH EFFORTS ESSENTIAL ESPECIALLY IN VIEW OF THE MANY PUBLIC WATER SUPPLIES SERVING MILLIONS OF PEOPLE WHICH ARE DRAWN FROM THESE WATERS. ONE OF THE GREAT SUCCESS STORIES IS THE RESTORATION OF THE FISH AND WILDLIFE RESOURCES OF THE GREAT LAKES; THEY ARE TRULY DESERVING OF THE MOST DILIGENT PROTECTIVE EFFORTS. THE GREAT LAKES ARE A NATURAL RESOURCE MOST VULNERABLE TO POLLUTION FROM SPILLS OF PETROLEUM AND HAZARDOUS SUBSTANCES. A CHAIN OF LAKES, SLOWLY REPLENISHED AND SLUGGISHLY MIXED, THEY FORM A CONTAINED SYSTEM WITH ALL WATERS ULTIMATELY PASSING THROUGH THE ST. LAWRENCE RIVER TO THE ATLANTIC OCEAN.

OVER NINETY PERCENT OF THE UNITED STATES' FRESHWATER SUPPLY IS CONTAINED IN THE LAKES, AND NEARLY TWENTY-FIVE MILLION PEOPLE IN THE UNITED STATES AND CANADA TAKE THEIR DRINKING WATER FROM THEM. THE GREAT LAKES AND CONNECTING CHANNELS PROVIDE WATER FOR INDUSTRIAL PRODUCTION, AGRICULTURAL IRRIGATION AND POWER PLANT COOLING. THESE WATERS SUPPORT IMPORTANT COMMERCIAL AND SPORT FISHERIES AND WATER AND SHORE-BASED RECREATION. GREAT LAKES DEPENDENT TRANSPORTATION, COMMERCIAL AND AGRICULTURAL ACTIVITIES ARE NO LESS IMPORTANT TODAY THAN WHEN THESE ACTIVITIES SUPPORTED WESTERN EXPANSION OF OUR COUNTRY MORE THAN A CENTURY AGO. THE LOSS OF THESE WATERS THROUGH OIL SPILLS WOULD BE A SERIOUS THREAT TO THE PUBLIC HEALTH, ECONOMIC LIVELIHOOD AND RECREATIONAL ENJOYMENT OF MILLIONS OF PEOPLE.

I WILL RESPOND TO THE SUBCOMMITTEE'S SPECIFIC QUESTIONS IN THE ORDER PRESENTED.

1. WHAT ARE THE PROCEDURES FOR HANDLING SPILLS OF OIL AND OTHER HAZARDOUS MATERIALS ON THE GREAT LAKES, INCLUDING THE AVAILABILITY, EFFECTIVENESS AND LIMITS OF CURRENT EQUIPMENT AND TECHNOLOGY?

SPILLS IN THE GREAT LAKES ARE HANDLED BY THE UNITED STATES AND CANADIAN COAST GUARDS UPON NOTIFICATION TO NATIONAL RESPONSE CENTERS OR LOCAL DETACHMENTS. STATE AND PROVINCIAL GOVERNMENTS AND OTHER AFFECTED LOCAL JURISDICTIONS ARE NOTIFIED AS NECESSARY IN A CASCADING SYSTEM OF PHONE CALLS.

THE COAST GUARD HAS ON-SCENE RESPONSE CAPABILITY ON A 24-HOUR PER DAY BASIS THROUGHOUT THE GREAT LAKES BASIN. RESPONSE ACTIONS, WHETHER TAKEN BY THE SPILLER OR BY THE GOVERNMENTS AND THEIR CONTRACTORS, INITIALLY INCLUDE MAKING AN IMMEDIATE ASSESSMENT OF THE SEVERITY OF THE SPILL, ITS EXPECTED IMPACT AND POSSIBLE CONSEQUENCES; APPROPRIATE EQUIPMENT IS THEN SOUGHT AND DEPLOYED. SPECIALISTS CAN BE ASSEMBLED IF NECESSARY, UTILIZING THE COAST GUARD STRIKE TEAMS, INDUSTRY EXPERTS, THE FEDERAL REGIONAL RESPONSE TEAM AND STATE AND LOCAL GOVERNMENTS.

THIS ACTIVITY TAKES PLACE UNDER THE AUTHORITY AND GENERAL DIRECTION OF THE NATIONAL EMERGENCY RESPONSE PLAN, AND A HOST OF LOCAL CONTINGENCY PLANS. IN THEORY, THIS IS A GOOD SYSTEM; IN PRACTICE, HOWEVER, THERE ARE MANY CRITICAL DELAYS. CONTINGENCY PLANS ARE WOEFULLY OUTDATED; AS WITH MOST PLANNING EFFORTS, WHEN THE POSSIBILITY OF AN EVENT APPEARS REMOTE, PREPAREDNESS LOSES TO OTHER PRESSING

PRIORITIES. WE STILL SUFFER FROM AN "IT WON'T HAPPEN HERE" MENTALITY, UNTIL JOLTED INTO REALITY BY A VALDEZ-TYPE TRAGEDY.

FEDERAL AND STATE AGENCIES NEED ADDITIONAL STAFF TO PREPARE AND OVERSEE CURRENT, ADEQUATE, WORKABLE, AND PRACTICAL CONTINGENCY PLANS, TO REHEARSE RESPONSE TO A VARIETY OF SCENARIOS, AND TO SUPERVISE OR TEST THE ACTUAL DEPLOYMENT OF EQUIPMENT.

BOTH FEDERAL AND STATE AGENCIES RELY ON CONTRACTORS TO PROVIDE MOST OF THEIR AVAILABLE POLLUTION RESPONSE CAPABILITY. THIS IS A SOUND ECONOMIC DECISION, AS CONTRACTORS CAN BETTER KEEP THEIR EQUIPMENT IN WORKING ORDER AND THEIR PERSONNEL TRAINED DUE TO THE ECONOMIES OF SCALE GAINED FROM CONDUCTING BUSINESS FOR PRIVATE PARTIES AS WELL AS GOVERNMENT INTERESTS. THIS APPROACH, HOWEVER, DOES HAVE ITS WEAKNESSES: CONTRACTORS ONLY HAVE THE MINIMUM EQUIPMENT NECESSARY TO OPERATE A BUSINESS AND NOT THE AMOUNT NEEDED TO HANDLE A MAJOR OR SEVERAL SMALLER SIMULTANEOUS SPILLS; THERE IS NO GOVERNMENT OR COMPREHENSIVE INDUSTRY INVENTORY OF WHERE ALL SUCH PRIVATE EQUIPMENT IS AT ANY GIVEN TIME; AND ALL OF SUCH EQUIPMENT IS NOT AVAILABLE TO THE GOVERNMENT WHEN NEEDED.

IT IS NOT APPROPRIATE OR NECESSARY FOR THE STATE GOVERNMENT TO STOCKPILE EQUIPMENT IN WAREHOUSES WITH LIMITED ACCESS FOR WHEN NEEDED. THIS SHOULD BE ACCOMPLISHED BY THE PRIVATE SECTOR AND THE COAST GUARD STRIKE TEAMS. ONE PROMISING ADDITION TO THIS GOVERNMENT-CONTRACTOR RELATIONSHIP HAS BEEN OIL SPILL COOPERATIVES FORMED BY THE OIL COMPANIES. THESE MULTI-COMPANY POOLS OF EQUIPMENT AND PERSONNEL ARE

PLEDGED TO EACH MEMBERS ASSISTANCE. THESE OIL COMPANY COOPERATIVES DO NOT COMPETE WITH PRIVATE CONTRACTORS, BUT CAN PROVIDE EARLY CRITICAL RESPONSE TO INCIDENTS. RECENT INDUSTRY EFFORTS TO EXPAND THESE COOPERATIVES WILL BE DISCUSSED LATER.

THE AVAILABILITY OF ADEQUATELY TRAINED PERSONNEL IS JUST AS IMPORTANT AS HAVING ENOUGH OF THE RIGHT EQUIPMENT. NEW YORK HAS WORKED WITH THE UNITED STATES COAST GUARD ON MANY OCCASIONS IN THE COURSE OF RESPONDING TO SPILLS ON NAVIGABLE WATERS. THE COAST GUARD IS A MOTIVATED AND EFFECTIVE PRESENCE WHEN COMMANDING SPILL RESPONSE AND CLEANUP EFFORTS.

HOWEVER, THE COAST GUARD PRESENCE IN POLLUTION PREVENTION AND RESPONSE HAS SUFFERED NOTICEABLY FROM SUCCESSIVE YEARS OF BUDGET CUTS. STATIONS HAVE CLOSED, DETACHMENTS HAVE BEEN MOVED, A STRIKE TEAM DEACTIVATED, AND STRENGTH DIMINISHED IN THE FACE OF OTHER PRESSING NEEDS. NEW YORK UNDERSTANDS THIS SITUATION, AS WE HAVE A DOCUMENTED SERIOUS SHORTFALL IN OUR OWN OIL SPILL PROGRAM AND HAVE NOT BEEN ABLE TO BUDGET POSITIONS AT LEVELS NECESSARY. ONE VERY ESSENTIAL STEP CONGRESS CAN TAKE IS TO ASSURE THAT ADEQUATE RESOURCES, BOTH PERSONNEL AND MATERIAL, ARE DEDICATED TO CARRY OUT PRESENT AND PROPOSED POLLUTION CONTROL MANDATES, AND AUDIT AND OVERSEE THEIR APPROPRIATE UTILIZATION BY BOTH FEDERAL AND STATE GOVERNMENT.

THE WATERS OF THE GREAT LAKES CAN BE ANGRY ADVERSARIES IN SEVERE WEATHER, REQUIRING THE USE OF HEAVY DUTY OIL SPILL EQUIPMENT TO OPERATE IN WIND AND WAVES. WHILE LIGHT DUTY BOOMS AND BARRIERS ARE

AVAILABLE, FEW HEAVY DUTY OCEAN-TYPE BARRIERS AND BOOMS, NOR THE POWERFUL SHALLOW DRAFT WORK BOATS AND ADEQUATE ANCHORING SYSTEMS NEEDED TO DEPLOY THEM, ARE AVAILABLE IN THE GREAT LAKES AREA.

BOOMS ARE NOT EFFECTIVE CONTAINMENT MEASURES ON SWIFT RIVERS, SUCH AS THE NIAGARA AND THE ST. LAWRENCE, AS OIL CAN NOT BE COLLECTED IN CURRENTS OVER ONE KNOT. HOWEVER, HEAVY DUTY BOOMS CAN BE SET AT ANGLES TO DEFLECT OIL FROM SENSITIVE INSTALLATIONS AND HABITATS, BUT IT TAKES PRACTICED SKILLS AND APPROPRIATE EQUIPMENT TO DO THIS, AND THESE ARE IN SHORT SUPPLY.

WITH TECHNOLOGICAL ADVANCEMENTS THERE HAVE BEEN IMPROVEMENTS IN SPILL CONTAINMENT THROUGH RECOVERY BY SKIMMERS FROM OPEN WATER, OFF LOADING OR LIGHTERING OF VESSELS, AND IN SOME CASES, MORE DURABLE VESSEL CONSTRUCTION. HOWEVER, TWO FACTORS LIMIT THE EFFECTIVENESS OF CONTAINMENT MEASURES: HUMAN AND PROVIDENTIAL.

WE CAN DO MUCH TO INCREASE THE EFFECTIVENESS OF THE HUMAN ELEMENT BY PROVIDING ADEQUATE EQUIPMENT, TRAINED PERSONNEL, IMPROVED COMMUNICATION, DECISIVE AND PROMPT COMMAND ACTIONS, FASTER STAGING AND DEPLOYMENT OF EQUIPMENT, INCREASED OPPORTUNITIES FOR DRILLS AND SIMULATIONS, BETTER PLANNING, STRONGER AND SAFER VESSELS, IMPROVED NAVIGATION, AND EFFECTIVE ENFORCEMENT OF LAWS AND REGULATIONS. HOWEVER, WE WILL NEVER BE ABLE TO CONTROL THE EXACT CONDITIONS UNDER WHICH SPILLS OCCUR; DARKNESS, WIND, WINTER, INACCESSIBLE LOCATIONS, WEEKENDS AND HOLIDAYS AND A HOST OF OTHER INTRACTABLE INTANGIBLES WILL ALWAYS FRUSTRATE AND COMPLICATE OUR BEST EFFORTS.

2. CONTRAST SPILL RESPONSE IN THE GREAT LAKES WITH SPILL RESPONSE IN THE OCEAN; WHAT ARE THE DIFFERENT TECHNICAL NEEDS?

SIMILAR NATURAL CHARACTERISTICS RESULT IN SIMILAR SPILL RESPONSE IN THE GREAT LAKES AND OCEAN ENVIRONMENTS. ONE NATURAL SIMILARITY IS OPEN EXPANSES OF WATER, WHICH CAN AID DISPERSION AND EVAPORATION, PARTICULARLY OF NON-PERSISTENT OILS SUCH AS GASOLINE. ALSO IN OPEN WATERS THERE IS OFTEN MORE TIME TO CONTAIN A SPILL BEFORE IT REACHES THE SHORE, AND MORE ROOM TO MANEUVER RESPONSE VESSELS. ANOTHER NATURAL SIMILARITY IS THE PRESENCE OF LARGE WAVES WHICH CAN LIMIT THE EFFECTIVENESS OF BOTH CONTAINMENT BOOMS AND SKIMMING MACHINERY.

LIKEWISE, DIFFERENT NATURAL CHARACTERISTICS RESULT IN DIFFERENT SPILL RESPONSE; THE TIDAL ACTION OF THE OCEANS, FOR INSTANCE, PROVIDES SOME PREDICTABILITY TO OIL MOVEMENT, WHEREAS IN THE LAKES SPILL MIGRATION IS CALCULATED BASED ON WIND DIRECTION. THE GREAT LAKES CONNECTING CHANNELS ARE ONE-DIRECTIONAL AND QUITE SWIFT, WHEREAS IN THE OCEAN, TIDAL INLETS AND RIP TIDES RESULT IN MULTI-DIRECTIONAL FLOWS. DESPITE THE NATURAL DIFFERENCES, HOWEVER, ADAPTATION OF EQUIPMENT AND TECHNIQUES IS MORE APPROPRIATE THAN DEVISING TOTALLY DIFFERENT CLEANUP STRATEGIES FOR THE TWO ENVIRONMENTS.

THE GREAT LAKES FRESH WATER ENVIRONMENT IS MORE FRAGILE AND VULNERABLE THAN THE OCEAN. ECOSYSTEMS ARE MORE COMPACT AND CONFINED, AND NOT EASILY REPLENISHED FROM DISTANT AND MIGRANT STOCKS. HUMANS ARE ALSO MORE DIRECTLY DEPENDENT UPON THE LAKES. CONTAMINATED DRINKING WATER WILL DIRECTLY IMPACT PUBLIC HEALTH. IN THE LAKES THERE

IS ALSO DIRECT USE FOR INDUSTRY AND AGRICULTURE THAT DOES NOT OCCUR WITH OCEAN WATERS. THE LAKES NEED MORE PROTECTION DUE TO THIS VULNERABILITY.

INCENTIVES TO PREVENT OIL SPILLS ARE VITALLY IMPORTANT ON THE GREAT LAKES. MEASURES SHOULD BE AT LEAST AS STRINGENT AS THOSE PROPOSED IN PENDING LEGISLATION FOR COASTAL WATERS. THE ISSUES INCLUDE:

1. A LIABILITY REGIME IMPOSING A HIGH STANDARD OF CARE;
2. TRAINING AND CERTIFICATION OF NAVIGATORS AND OPERATORS; AND
3. TECHNICAL STANDARDS FOR EQUIPMENT AND VESSELS.

DISPERSANTS HAVE BEEN PROFFERED AS UNIVERSAL PANACEAS IN OCEAN SPILLS AND PUBLIC OFFICIALS HAVE BEEN VILIFIED BY SPILLERS WHEN CARTE BLANCHE USE OF DISPERSANTS HAS NOT BEEN APPROVED. CAREFUL REVIEW OF AVAILABLE LITERATURE, AND CONSULTATION WITH OUR CANADIAN NEIGHBORS, HAS LED US TO BELIEVE VERY FEW OF THE CLAIMS MADE FOR CURRENTLY AVAILABLE DISPERSANTS. THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (U.S.E.P.A.) CRITERIA FOR LISTING DISPERSANTS HAS LITTLE TO DO WITH EFFECTIVENESS. UNITED STATES GOVERNMENT VERIFICATION OF SELF-SERVING COMMERCIAL CLAIMS IS ALMOST NON-EXISTENT. THE U.S.E.P.A. PROGRAM TO DEAL WITH DISPERSANTS APPEARS TO BE WITHOUT POLICY, DIRECTION, RESOURCES OR PURPOSE. MUCH CAN BE LEARNED FROM THE DISPERSANT REQUIREMENTS OF THE CANADIAN CERTIFICATION PROGRAM RELATING TO EFFECTIVENESS, APPROPRIATE UTILIZATION, AND MINIMIZATION OF ECOLOGICAL IMPACTS.

3. CAN A SPILL RESPONSE CENTER IN THE NEW YORK METROPOLITAN AREA SERVICE ALL THE GREAT LAKES OR WILL ADDITIONAL CENTERS LOCATED IN THE GREAT LAKES AREA BE NECESSARY?

NEW YORK STRONGLY SUPPORTS THE PETROLEUM INDUSTRY INITIATIVE ANNOUNCED JUNE 20, 1989 TO CREATE A PETROLEUM INDUSTRY RESPONSE ORGANIZATION (PIRO) WITH FIVE REGIONAL CENTERS. WE BELIEVE THE NEW YORK METROPOLITAN AREA IS AN APPROPRIATE LOCATION FOR ONE CENTER DUE TO EXCELLENT PORT FACILITIES, A LARGE PRIVATE SECTOR INVOLVED IN THE MARINE BUSINESS INCLUDING POLLUTION RESPONSE, AVAILABILITY OF VESSEL REPAIR AND SALVAGE SERVICES, AN EXPERIENCED LABOR POOL, THE NEARBY COAST GUARD INSTALLATION AT GOVERNORS ISLAND AND THE LARGE VOLUME OF WATER BORNE PETROLEUM SHIPMENTS.

WE BELIEVE, HOWEVER, THAT AT LEAST ONE MORE RESPONSE CENTER IS NEEDED FOR THE GREAT LAKES, PREFERABLY TWO CENTERS ARE RECOMMENDED: ONE LOCATED IN THE UPPER LAKES AND ONE LOCATED IN THE LOWER LAKES. THE GREAT LAKES ARE THE UNITED STATES "FOURTH COAST". THERE ARE OVER 15,000 MILES OF SHORELINE IN THE UNITED STATES AND CANADA. MORE THAN 1,500 MILES IS SPANNED FROM EAST TO WEST ACROSS THE LAKES AND THEIR CONNECTING CHANNELS. THESE FRESH WATERS ARE VERY DIFFERENT FROM THE OCEAN ENVIRONMENTS, AND AS POINTED OUT PREVIOUSLY, THE NEEDS FOR PLANNING AND POLLUTION RESPONSE DIFFER FROM OCEAN WATERS. THE SHEER SIZE OF THE GREAT LAKES AND DISTANCE FROM OTHER PROPOSED RESPONSE CENTERS ARGUES FOR LOCATING RESPONSE CENTERS THERE. WE BELIEVE THAT EQUIPMENT AND SPECIALLY TRAINED PERSONNEL NEED TO BE AVAILABLE QUICKLY IN THE GREAT LAKES SYSTEM. NEW YORK WOULD ACTIVELY ASSIST INDUSTRY

AND THE UNITED STATES AND OTHER STATE GOVERNMENTS, TO PLAN FOR AND SUPPORT TWO GREAT LAKES RESPONSE CENTERS.

NEW YORK IS INVOLVED WITH MANY ORGANIZATIONS IN THE GREAT LAKES IN POLLUTION RESPONSE. THESE INCLUDE THE UNITED STATES AND CANADIAN COAST GUARDS, UNITED STATES AND CANADIAN REGIONAL AND JOINT RESPONSE TEAMS, THE INTERNATIONAL JOINT COMMISSION, THE GREAT LAKES GOVERNORS, THE U.S.E.P.A., THE CANADIAN AND ONTARIO MINISTRIES OF THE ENVIRONMENT, AND THE ST. LAWRENCE SEAWAY AUTHORITY AND DEVELOPMENT CORPORATION. WITHIN ALL OF THESE WORKING ARRANGEMENTS AND COMMITTEES ARE MANY PEOPLE KNOWLEDGEABLE ABOUT SPILL PREVENTION AND RESPONSE. UNFORTUNATELY, THERE IS MUCH THAT COULD BE DONE TO INTEGRATE THIS KNOWLEDGE INTO A MORE EFFECTIVE REGIONAL PLAN FOR RESPONSE TO MAJOR SPILLS.

THE ORGANIZATIONAL FRAMEWORK EXISTS. VARIOUS STRATECIES HAVE IDENTIFIED NECESSARY ELEMENTS OF PLANNING, COMMUNICATIONS, OPERATIONS AND RESPONSE. WHAT IS NEEDED, AT THE NATIONAL AND STATE GOVERNMENT LEVELS ARE PEOPLE WORKING FULL TIME ON THESE PLANS, KEEPING THEM UPDATED, CONDUCTING TRAINING, AND INFORMING PEOPLE OF THE PLANS AND HOW THEY WORK. MOST GOVERNMENT AGENCIES EITHER DO NOT HAVE SUFFICIENT PERSONNEL TO DEVOTE TO THESE ISSUES, OR FAIL TO SEE THE NEED TO DO SO, UNTIL TRAGEDY STRIKES.

NEW YORK ALSO HAS A STRONG PROGRAM FOR PREVENTION OF SPILLS FROM ON-SHORE FACILITIES. THIS PROGRAM CALLS FOR ANNUAL LICENSING OF MAJOR FACILITIES, INSPECTIONS, TANK TESTING, AND MANDATORY SPILL CONTAINMENT

AND COUNTERMEASURE PLANS. WHILE A SPILL RESPONSE PROGRAM IS AN ABSOLUTE NECESSITY, WE BELIEVE PREVENTION OF SPILLS THROUGH PLANNING IS THE BEST WAY TO ENSURE THAT OUR ENVIRONMENT IS PROTECTED FROM PETROLEUM DAMAGE.

NEW YORK, HOWEVER, MUST RELY ON THE COAST GUARD TO INSPECT VESSELS AND THEIR POLLUTION CONTROL PLANNING. AGAIN, WE ALSO SEE HOW A LACK OF PERSONNEL CAN HAMPER THESE PREVENTION DIRECTED PROGRAMS. RIGOROUS AND FREQUENT INSPECTIONS ARE NEEDED, BUT THERE ARE CURRENTLY NOT ENOUGH PERSONNEL TO PERFORM THEM; FACILITY OPERATORS NEED TO BE QUALIFIED, AND NAVIGATORS NEED TO BE CERTIFIED AS CAPABLE OF PILOTING THEIR VESSELS, BUT THERE ARE NOT ENOUGH PERSONNEL TO DO THE TESTING; VESSEL MOVEMENTS NEED TO BE TRACKED AND VESSEL TRANSFERS OF PETROLEUM CLOSELY MONITORED, HOWEVER, THERE ARE NOT ENOUGH PERSONNEL FOR THESE TASKS EITHER.

THE BEST PLANS ARE FOR NAUGHT IF PROVISION IS NOT MADE TO CARRY THEM OUT. MANY FINE LEGISLATIVE PROPOSALS RELATING TO POLLUTION PREVENTION, RESPONSE, NAVIGATION, SHIPBUILDING, ETC. ARE NOW BEFORE THE CONGRESS. HOWEVER, UNLESS THESE PROPOSALS ALSO INCLUDE SPECIFIC APPROPRIATIONS AND MECHANISMS TO IMPLEMENT THEM, THEIR INTENT AND PURPOSES WILL NOT BE REALIZED REGARDLESS OF HOW WELL CRAFTED AND LAUDABLE THEY MAY BE.

ATTACHED FOR YOUR REFERENCE IS TESTIMONY DELIVERED BEFORE THE UNITED STATES SENATE COMMITTEE OF ENVIRONMENT AND PUBLIC WORKS BY COMMISSIONER JORLING ON JULY 21ST, 1989. IN HIS TESTIMONY, COMMISSIONER JORLING POINTS OUT THE NEED FOR IMPROVED OIL SPILL COST RECOVERY PROCEDURES AND THE IMPORTANCE OF PREVENTING OIL SPILLS THROUGH THE LEGAL MECHANISMS OF STRICT LIABILITY AND MEANINGFUL DAMAGE AWARDS.

THANK YOU MR. CHAIRMAN FOR THIS OPPORTUNITY TO TESTIFY ON THESE IMPORTANT ISSUES. MR. QUINN AND I WILL BE PLEASED TO ANSWER ANY QUESTIONS YOU MAY HAVE.

TESTIMONY OF THOMAS C. JORLING
COMMISSIONER, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

BEFORE THE COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
U.S. SENATE

JULY 21, 1989

MR. CHAIRMAN, I AM PLEASED TO COME BEFORE YOU TO TESTIFY ON PENDING OIL SPILL LEGISLATION AND, NECESSARILY, ON THE RELATIONSHIP OF DOMESTIC OIL SPILL LEGISLATION TO THE INTERNATIONAL REGIME THAT HAS BEEN ESTABLISHED OVER THE YEARS.

MR. CHAIRMAN, BEGINNING IN 1968 DURING SERVICE TO THIS COMMITTEE AS MINORITY COUNSEL, I HAVE BEEN BOTH PARTICIPANT IN AND OBSERVER OF THE CONTINUING STRUGGLE TO ESTABLISH A REGIME OF RESPONSE TO OIL AND, NOW, CHEMICAL SPILLS, BY DEVELOPING RESOURCES NECESSARY TO MAKE THAT RESPONSE MEANINGFUL, AND BY IMPOSING REGIMES OF LIABILITY ON THE PARTIES WHO ARE ENGAGED IN THE MARKETING OF THESE MATERIALS. FOR MOST OF THE PERIOD, THE UNITED STATES HAS BEEN A LEADER IN THIS EFFORT, WITH MANY STATES, INCLUDING MY OWN, ESTABLISHING THEIR OWN PROGRAMS. A COMPREHENSIVE AND ADEQUATE OIL SPILL CONTROL PROGRAM, WHETHER STATE, FEDERAL OR INTERNATIONAL, MUST ACHIEVE TWO SIMPLE BUT EXTREMELY IMPORTANT OBJECTIVES.

THE FIRST OBJECTIVE IS TO PUT IN PLACE A BODY OF AUTHORITY AND RESOURCES THAT ASSURE IMMEDIATE AND ADEQUATE RESPONSE IN ANY AND ALL CIRCUMSTANCES IN WHICH AN OIL SPILL MIGHT OCCUR. TO SATISFY THIS OBJECTIVE, WE HAVE ESTABLISHED FUNDS MAKING

RESOURCES AVAILABLE AT THE FEDERAL AND STATE LEVELS TO ENABLE QUICK RESPONSE TO REMOVE AND REMEDIATE SPILLS WHEN RESPONSIBLE PARTIES DO NOT UNDERTAKE IMMEDIATE, PROPER AND ADEQUATE MEASURES. THIS AUTHORITY AND THESE PROGRAMS ARE BACKED BY FUNDS VARIOUSLY ESTABLISHED AT BOTH THE STATE AND FEDERAL LEVEL, BUT ALL SHARING THE COMMON THEME OF PROVIDING READILY AVAILABLE RESOURCES GENERATED BY FEES IMPOSED ON THE MOVEMENT ON PETROLEUM AND ITS PRODUCTS. THE FUND SIZES ARE, HOWEVER, NOT ADEQUATE. ENLARGING THEM IS ONE PRINCIPLE PURPOSE OF THE LEGISLATION PENDING BEFORE YOU.

FURTHER, WE HAVE SEEN RECENTLY, ESPECIALLY IN THE VALDEZ CASE, THAT THERE ARE OTHER IMPEDIMENTS TO THE IMMEDIATE DEPLOYMENT OF THESE RESOURCES. AS YOU REVIEW THE LEGISLATION BEFORE YOU, YOU MUST ENSURE THAT COST RECOVERY PROCEDURES ARE NOT SO RIGID THAT IF RESPONSIBLE PARTIES DO NOT APPEAR TO BE RESPONDING, OR RESPONDING QUICKLY ENOUGH OR ADEQUATELY ENOUGH, ON-SCENE COORDINATORS ARE DISCOURAGED FROM ACTING FOR FEAR THAT REIMBURSEMENT FOR COSTS INCURRED MAY NOT BE ULTIMATELY AVAILABLE. THE LAST THING THAT AN ON-SCENE COORDINATOR NEEDS IN A VERY CONFUSING AND URGENT SITUATION IS DOUBT AS TO WHETHER HIS OR HER ACTIONS TO COMMENCE SPENDING FROM A STATE OR FEDERAL FUND WILL BE COVERED BY THE LIABILITY REGIME. THE LAW MUST MAKE IT CLEAR THAT INADEQUATE CLEANUP ON THE PART OF A RESPONSIBLE PARTY WILL MEET WITH IMMEDIATE ACTION BY FEDERAL OR STATE RESPONSE AUTHORITIES.

.THE SECOND OBJECTIVE AND, IN THE LONG TERM THE MAIN OBJECTIVE, OF THE OVERALL SCHEME OF OIL POLLUTION RESPONSE AND LIABILITY IS TO INDUCE A HIGH STANDARD OF CARE IN THE HANDLING, STORAGE AND TRANSPORTING OF OIL. WHILE HIGH LIABILITY LIMITS AND ACCESS TO RESPONSIBLE PARTIES ARE CRITICAL TO A COMPREHENSIVE OIL SPILL PROGRAM, THEY ARE LESS IMPORTANT THAN PREVENTING THE SPILL IN THE FIRST PLACE. THE POLICY MUST BE TO AVOID LOSS OF NATURAL RESOURCES AS THERE IS NO GUARANTEE THAT SUCH RESOURCES WILL EVER BE REPLACED. YOUR LEGISLATIVE OBJECTIVE OUGHT NOT TO BE PUNITIVE TOWARD THE TRANSPORT OF OIL BUT TO THE SPILL OF OIL. YOUR TASK IS COMPARABLE TO MY RESPONSIBILITIES AS THE COMMISSIONER OF ENVIRONMENTAL CONSERVATION TO PURCHASE LANDS IN NEW YORK STATE'S ADIRONDACK PARK FOR PERPETUAL PRESERVATION, OR TO PUT IT ANOTHER WAY, TO PREVENT LOSS OR DAMAGE TO THESE IMPORTANT NATURAL RESOURCES. YOU, TOO, MUST HAVE AS YOUR OBJECTIVE THE MARSHALLING OF EVERY REGULATORY WEAPON AVAILABLE TO PREVENT NATURAL RESOURCE DESTRUCTION IN THE FIRST INSTANCE.

IT IS CLEAR THAT THE REGIMES THAT ARE IN PLACE ARE INSUFFICIENT IN IMPOSING THE NECESSARY LEVEL OF PREVENTION. THE INCIDENTS WE HAVE SEEN IN RHODE ISLAND AND IN ALASKA MAKE IT CLEAR THAT SHIP OWNERS AND OPERATORS, THOSE PERSONS RESPONSIBLE FOR IMPOSING STANDARDS OF CARE, STILL TAKE RISKS THAT DO NOT, BY ANY CALCULUS, FALL WITHIN THE RANGE ACCEPTABLE TO SAFELY MANAGE THIS COMMODITY. THE MOST EFFECTIVE METHOD OF INDUCING A HIGH STANDARD OF CARE IS TO ASSURE THAT THE SPILLER WILL BE HELD

LIABLE AND THAT THE STANDARDS OF LIABILITY ARE CLEAR AND ENFORCEABLE.

STRICT LIABILITY IS A MUST. DEFENSES OF CONTRIBUTORY, COMPARATIVE OR EVEN ABSENCE OF NEGLIGENCE MUST NOT BE AVAILABLE TO THOSE WHO MANAGE OIL OR CHEMICALS IN BULK. DEFENSES TO LIABILITY SHOULD NOT EXTEND ANY FURTHER THAN THOSE IN FEDERAL LAW SINCE 1970: THAT IS, ONLY WHEN THE RELEASE IS SOLELY THE RESULT OF AN ACT OF GOD, AN ACT OF WAR OR AN ACT OF A THIRD PARTY. INTENT HAS NOTHING TO DO WITH THE ACHIEVEMENT OF A HIGH STANDARD OF CARE. WE HAVE SEEN REPEATEDLY IN ENVIRONMENTAL LAW THAT RESPONSIBLE PARTIES WILL NOT TAKE THE STEPS NECESSARY TO AVOID RELEASES TO THE ENVIRONMENT ABSENT THE DISCIPLINE OF STRICT STANDARDS OF LIABILITY WHICH EXPOSE RESPONSIBLE PARTIES TO THE FULL CONSEQUENCES OF THEIR ACTIONS.

ADEQUATE LIABILITY LIMITS ARE ALSO CRITICAL TO ACHIEVING HIGH STANDARDS OF CARE. LOW LIABILITY LIMITS CAN PRODUCE A BUSINESS JUDGMENT THAT THE INSURANCE CHARACTERISTICS ARE SUFFICIENT TO COVER ANY POTENTIAL COSTS OF RELEASE. RISK BECOMES, IN SHORT, A COST OF DOING BUSINESS AND, THUS, STEPS NECESSARY FOR INDUCING A HIGH STANDARD OF CARE ARE NOT FACTORED INTO BUSINESS DECISIONS REGARDING HANDLING AND TRANSPORTATION OF OIL. LIMITS TO LIABILITY, IF THEY HAVE ANY PURPOSE AT ALL, MUST BE HIGH ENOUGH TO REFLECT THE REAL POTENTIAL FOR DAMAGE THAT CAN RESULT FROM THE RELEASE OF OIL. THEY SHOULD NOT, UNDER ANY

CIRCUMSTANCES, INDUCE THE MENTALITY THAT RISKS ARE COVERED AND, THEREFORE, BECOME A COST OF DOING BUSINESS.

MR. CHAIRMAN, OF ALL THE BILLS PENDING BEFORE CONGRESS, THE MAJORITY LEADER'S COMES THE CLOSEST TO SATISFYING THE TWO OBJECTIVES THAT I HAVE DESCRIBED. THE MITCHELL BILL PROVIDES THE FINANCIAL AND REGULATORY UNDERPINNINGS OF A QUICK RESPONSE PROGRAM, AND IT SETS FORTH THE STRICT LIABILITY STANDARD NECESSARY TO CREATE A PREVENTION MENTALITY BY THOSE WHO TRAFFIC IN OIL PRODUCTS. HOWEVER, THE BILL SHOULD BE AMENDED TO INCREASE THE LIABILITY LIMITS TO THE LEVEL NECESSARY TO PROVIDE DETERRENCE.

MR. CHAIRMAN, I THINK IT'S IMPORTANT TO REFLECT FOR A MOMENT ON THE OVERALL CHARACTER OF THE OIL POLLUTION CONTROL PROGRAM THAT EXISTS AT THE STATE, FEDERAL AND INTERNATIONAL LEVELS. IT HAS BEEN CALLED A "PATCHWORK QUILT" AND THAT IS CERTAINLY AN ACCURATE DEFINITION, BUT IT IS A "PATCHWORK QUILT" THAT IS EVOLVING TO PRODUCE A HIGH STANDARD OF CARE IN THE MANAGEMENT OF OIL. THE COASTAL STATES, LIKE NEW YORK, MUST HAVE THE ABILITY UNDER FEDERAL LAW TO CRAFT THEIR OWN PROGRAMS TO MEET THEIR OWN NEEDS, WITHOUT FEAR OF PREEMPTION. THERE IS NO JUSTIFICATION FOR PREEMPTION IN THIS FIELD OR IN ANY OTHER FIELD OF ENVIRONMENTAL OR HEALTH PROTECTION. THE CITIZENS OF ANY STATE MUST BE FREE TO MOVE BEYOND FEDERAL MINIMUMS IN ORDER TO PROTECT THE HEALTH AND WELFARE OF THEIR PEOPLE, AND OF THEIR ENVIRONMENT, AS THEY SEE THOSE NEEDS ARISE. THUS, ANY OF THE PROPOSALS WHICH WOULD

PREEMPT THE STATE LAW ARE OBJECTIONABLE. OUR PROGRAM IN NEW YORK IS CRUCIAL TO THE OVERALL SUCCESS IN ACHIEVING PREVENTION OF OIL SPILLS, NOT JUST IN COASTAL WATERS, BUT IN INLAND WATERS AND ON OUR LANDSCAPE AS WELL. THE COSTS OF THIS PROGRAM CAN BE VERY WELL BORNE BY THE COMMERCE OF OIL IN NEW YORK.

SECONDLY, THE FEDERAL GOVERNMENT SHOULD NOT ESTABLISH ARTIFICIALLY LOW LIMITS OF LIABILITY. THE MESSAGE OF RECENT INCIDENTS ONLY CONFIRM THAT OF PAST INSTANCES OF OIL SPILLS: THE COST OF OIL SPILLS, ESPECIALLY THE FULL COST OF CLEANUP AND RESTORATION, ARE VERY HIGH AND, UNLESS THE LIMITS OF LIABILITY REFLECT THAT FACT, THE "COST OF DOING BUSINESS MENTALITY" WILL PREVAIL AMONG THOSE RESPONSIBLE FOR MANAGING OIL. SPILLS CAUSED BY RISK-TAKING WILL CONTINUE TO OCCUR. THE "PATCHWORK QUILT" HAS BEEN WORKING IN THE UNITED STATES TO PROVIDE A MEASURE OF PREVENTION. IT NEEDS TO BE IMPROVED AND, ASSUMING INCREASE OF LIABILITY LIMITS, THAT IMPROVEMENT WOULD BE PROVIDED BY THE MAJORITY LEADER'S BILL.

BUT WE CANNOT IGNORE THE RELATIONSHIP OF U.S. LAW TO INTERNATIONAL LAW. AS I HAVE WITNESSED THE EVOLUTION OF OIL SPILL PROGRAMS, I AM CONTINUALLY IMPRESSED BY THE NUMBER OF OPPORTUNITIES INDUSTRY HAS TAKEN TO MOLD PUBLIC POLICY IN THE IMAGE OF ITS VIEWS. IN 1970, INDUSTRY STRUGGLED MIGHTILY TO PREVENT STATUTORY ENACTMENT OF THE STANDARD OF STRICT LIABILITY, AND FOUGHT HARD TO ESTABLISH LOW LIMITS OF LIABILITY. IN THE CONTEXT OF THAT PERIOD, THEY WERE UNSUCCESSFUL. THEY ENGAGED IN-

THE SAME KIND OF LOBBYING TO PREVENT ESTABLISHMENT OF STATE PROGRAMS TO PREVENT AND PROTECT FROM OIL SPILLS. INDUSTRY CONTINUES TO LOBBY AND I DO NOT BEGRUDGE THAT ACTIVITY. I RESPECT ANY INTEREST THAT UNDERTAKES TO REPRESENT ITSELF AND MINIMIZE ADVERSE IMPACTS UPON IT IN THE FORMULATION OF PUBLIC POLICIES. BUT IN THIS CASE, WE CANNOT CONFUSE THAT EFFORT WITH THE PUBLIC INTEREST.

IT IS IN THE INTERNATIONAL ARENA WHERE THE INDUSTRY'S EFFORTS AND PRESSURE TACTICS HAVE BEEN APPLIED TO THE GREATEST EFFECT. REPRESENTATIVES OF INDUSTRY OFTEN SERVE ON THE DELEGATIONS WHICH NEGOTIATE INTERNATIONAL AGREEMENTS, EVEN ON BEHALF OF THE UNITED STATES. BECAUSE OF THEIR ECONOMIC POWER, INDUSTRY OFTEN DICTATES THE NATIONAL POSITION OF MANY FOREIGN VERNMENTS. AS A CONSEQUENCE, THE PROVISIONS OF INTERNATIONAL LAW ARE OFTEN THE LOWEST COMMON DENOMINATOR, BENEFITTING THE INDUSTRY THEY ARE DESIGNED TO REGULATE. THE SUPREMACY CLAUSE OF THE CONSTITUTION MAKES THIS AN ESPECIALLY TROUBLESOME PATTERN. WHAT WE NOW HAVE IN THE INTERNATIONAL ARENA IS AN OIL POLLUTION REGIME WHICH IS INADEQUATE WITH RESPECT TO BOTH STANDARDS OF LIABILITY AND LIMITS OF LIABILITY. THE SO-CALLED PROTOCOLS WHICH HAVE BECOME SO IMPORTANT TO THIS YEAR'S DEBATE ON U.S. LEGISLATION ARE DEFICIENT AS A MATTER OF PUBLIC POLICY. THEY ARE DEFICIENT BECAUSE THEY WERE CRAFTED WITH THE FINE HAND AND THE ACTIVE PARTICIPATION OF THE INDUSTRY THEY ARE INTENDED TO REGULATE. THE UNITED STATES MUST TAKE THE POSITION THAT, WITH REGARD TO THE BASIC MINIMALLY ACCEPTABLE STANDARDS OF LIABILITY

FOR OIL POLLUTION, THE CURRENT CONVENTIONS AND PROTOCOL ARE INADEQUATE. THIS CAN ONLY BE DONE IF THE UNITED STATES CONTINUES TO REJECT THOSE PROVISIONS, AS IT HAS DONE OVER THE LAST SEVERAL YEARS, FIRST BY NOT RATIFYING THE PROTOCOLS AND NOW BY REJECTING THEM.

MR. CHAIRMAN, IF THE UNITED STATES TAKES THAT POSITION, WHICH YOU WOULD DO BY ADOPTING THE MAJORITY LEADER'S BILL AND BY NOT EXEMPTING OR PREEMPTING NATIONAL OR STATE LAW ON BEHALF OF THESE INTERNATIONAL AGREEMENTS, THE INTERNATIONAL COMMUNITY WILL RESPOND AND PRODUCE AN ACCEPTABLE REGIME. THIS IS A TIME FOR FIRMNESS AND THIS IS A TIME FOR LEADERSHIP AND, MR. CHAIRMAN, THIS COMMITTEE, THE SENATE AND THE UNITED STATES CONGRESS ARE IN A POSITION TO PROVIDE THAT LEADERSHIP.

SO LET ME RESTATE THE POSITION. WITH THE EXCEPTION OF ITS LIABILITY LIMITS, THE STATE OF NEW YORK SUPPORTS THE MAJORITY LEADER'S BILL ON OIL POLLUTION. WE OPPOSE ANY MEASURE WHICH WOULD IN ANY WAY PREEMPT STATE LAW AND PROGRAMS AND WE OPPOSE DEFERENCE TO ANY INTERNATIONAL AGREEMENT OR PROTOCOL WHICH ACCEPTS A STANDARD OF LIABILITY WHICH IS INADEQUATE TO PRODUCE THE HIGH STANDARD OF CARE WHICH IS ABSOLUTELY ESSENTIAL IF WE ARE TO REDUCE THE SCOURGE OF OIL SPILLS IN OUR ENVIRONMENT.

TESTIMONY OF WATER A. LYON BEFORE THE US SENATE SUB-COMMITTEE ON OVERSIGHT OF GOVERNMENT MANAGEMENT, COMMITTEE ON GOVERNMENTAL AFFAIRS

SEPTEMBER 6, 1989

Mr. Chairman and members of the Committee, I appreciate the opportunity to appear before you today in order to highlight the serious concern we all share about the potential for a disastrous spill of hazardous, radioactive substances, chemicals or oil affecting the Great Lakes . In my testimony I expect to answer-as best I can-four questions. They are:

1. Why should we be concerned?
2. What do we know about the problem?
3. What is being done to prevent spills?
4. What needs to be done?

Before I answer those questions I would like to tell you how I came to be concerned about this issue. My training as an environmental engineer at Johns Hopkins prepared me for work in the many governmental programs which were initiated by the US Congress to reflect the environmental concerns of the American people over the last 30 years.

I have worked in positions at the state, local and international level, particularly in connection with water quality management. From 1957 to 1979 I served as Pennsylvania's Water Quality Administrator, and, from 1979 to 1985, as Deputy Secretary to the Pennsylvania Department of Environmental Resources.

In connection with my state work since 1962, I served on various committees and boards of the International Joint Commission (IJC), which, by Treaty between the US and Canada have responsibility to investigate and report on pollution problems on the Great Lakes. While I do not appear before you in that capacity, I must tell you that my work with the IJC has led me to a much greater appreciation of the severity of the problem which is before you today. For a number of years, the IJC has been concerned with preventing a spill disaster on the Great Lakes.

It is important to reiterate that my observations and recommendations are my own and not those of the IJC.

1) WHY SHOULD WE BE CONCERNED ??

O - The Great Lakes are the drinking water of 25
Million People.

Approximately 25 million people use the water from the Lakes as their drinking water. All major cities in Canada and the United States - Detroit, Toronto, Chicago, Milwaukee, Cleveland, Buffalo, Niagara Falls, Kingston and others use the Great Lakes as their drinking water .

O - The Great Lakes are traps.

The Great Lakes are traps. Anything you put into them, whether it comes from air pollution, water pollution, point source discharges, non-point source runoff, or spills can stay for a long, long time. The residence time-as hydrologists would call it- of Lake Superior is 191 years, Lake Michigan - 99 years, Lake Huron -22 years, Lake Ontario - 8 years and Lake Erie - 3 years. Once something is spilled in those Lakes, it may be there for a long time.

Of particular concern are persistant hydrophobic chemicals such as PCBs which might migrate to sediments and bioconcentrate into biota, especially fish. The result is a long-term "in place" pollution situation which cannot be remediated except at excessive cost.

Beyond the use of the Great Lakes for drinking, the Great Lakes represent a tremendously valuable ecosystem, that is, an important part of the economic and social metabolism of the Great Lakes Region, composed of 8 states and the Province of Ontario. Without those Lakes, the economy and the social structure of that area cannot exist. They are completely dependent on it. The pressure on the uses of that system has greatly increased, not only with increased population, but also with the increasing recreational and industrial uses. A spill can do monumental, long-term damage to an ecologically important area.

O - You can't see chemical pollutants.

Another reason why we should be concerned is that in the past the emphasis in controlling pollution problems has related largely to visible aspects of the problem such as fish kills, oil spills, algae formed by nutrients. Most of our concerns about spills have related to oil and to the process of cleaning it up. While those things are important, they tend to focus on visible pollution and on its cleanup, not prevention. Chemical pollution is often not visible to the eye and can only be detected by sensitive laboratory instrumentation. Indeed, it is no coincidence that the priority pollutants are the chemicals which are most easily analysized. No doubt, there are many susrprises in store in the form of difficult-to-analyze chemicals which are presently undetected.

O - The potential for Spills is growing

-- The volume of chemicals being transported is increasing

We should be deeply concerned about the growing volume of chemicals that are being manufactured and transported in the Great Lakes. In fact, some of your environmental legislation such as the RECRA Act, which governs new hazardous waste, has put more hazardous waste onto the Great Lakes Basin transportation system than ever before.

For example Pennsylvania's hazardous waste used to go to the local sanitary land fill or dump a mile or two away, five miles at best. Today Pennsylvania's hazardous waste is transported, shipped by truck or rail to 26 distant states over the transportation system of the Nation. As you are aware, PCBs have been shipped from Quebec to the UK for incineration. What's true for Pennsylvania and Quebec is certainly true for other Canadian provinces and states in the US.

-- The potential quantities spilled are large

To place the quantities in perspective, the total amount of PCBs in the Lake Ontario ecosystem is a few tons, while there is probably less than one ton of mirex. The discharge controls often limit loadings to a few kilograms or pounds per day, which translates to much less than a ton per year. Yet one cargo may contain tens or even hundreds of tons of hazardous materials. There is, thus, the potential for a disaster which would render commendable efforts to control point sources as futile.

So the exposure of the Great Lakes to the hazards of a serious, major chemical spill is ever present and growing. Based on data on page 82 of the July 1986 Report on the Transportation of Hazardous Materials issued by the Office of Technology Assessment, we estimate that on the order of 3000 spills occur in the Great Lakes Basin every year.

-- The transportation system is not safe enough

Our transportation system which crisscrosses the Great Lakes Basin with highways, rail-lines, pipelines, and waterways is simply not capable of transporting hazardous substances safely. I say this for several reasons: 1) the volume of shipments of hazardous materials has increased due to increased production. (In 1988 the Saint Lawrence Seaway Development Corporation reports the passage of 3.4 million metric tons of hazardous materials, including oil) 2) the passage and implementation of RECRA and Superfund and other environmental laws has increased the volume of hazardous materials and the distance they are shipped 3) in some parts of the system and in some modes of transport the volume of traffic has increased. 4) Canadian Pilotage requirements have been relaxed. (The US Department of Transportation has similarly proposed a relaxation which has not been adopted.)

In addition, we know that some of the practices relating to the transfer of oil and chemicals from vessels to lighters are being conducted in places such as the Calumet Harbor, within a few miles of the waterworks intakes of the Cities of Hammond, Indiana and Chicago, Illinois. I share with you the very deep concern of a tug boat captain who tried unsuccessfully to push the panic button in connection with that problem for several months without any results except some personal retribution.

D - The potential for surreptitious spills is increasing

The economics of hazardous wastes management, due to RECRA, Superfund and its companion laws at the state level have dramatically raised the standards and costs of managing, transporting and disposing hazardous wastes and consequently, the temptation to make a fast buck by illegally disposing of them surreptitiously has skyrocketed.

Anecdotal testimony by responsible people tells us that foreign flag vessels entering the Great Lakes are dumping hazardous waste without our knowledge.

2) WHAT DO WE KNOW ABOUT THE PROBLEM ???

We know enough to be deeply concerned and to take some common sense corrective steps immediately.

We don't know enough to take the most cost-effective steps over the long term.

We have made some rough estimates about the number of spills which occur and we assume that so far none have been too serious.

We also know that the system isn't very safe. In fact, it's obsolete in the sense that it does not protect us in any way against a serious disaster.

Using the experience of others from the field of commercial aviation, we know that most accidents (spills) are caused by human factors. However, human factors include a broad range of things, including drug abuse, boredom, excessive automation, lack of training and fatigue. There is virtually no data to guide our actions in this area and we need such data urgently.

Data on this subject is collected by a number of agencies in such a disjointed manner that it is impossible to put the data together in a meaningful way. Even if that were possible, it would tell us very little about the human factors which caused the spill. That information is essential to affect spill pollution.

The IJC commissioned two contracts to look at US and Canadian spill reporting systems at the national, provincial/state and local level. While there are many such systems, they are so fragmented, so uncoordinated and so incomplete as to provide us with no meaningful data. In order to deal with the complex problem of preventing spills, it is absolutely essential that we have more meaningful information about the kinds of spills that are occurring, where they are occurring, and their cause. One can surmise, based on other information about accidents, that a very high percentage of spills are due to human error.

Based on this knowledge, the Technology Committee of the Science Advisory Board of the IJC convened three workshops-in 1986, 1987 and 1988-to address the Human/Machine problem as it relates to the problem of preventing spills. This includes such considerations as inadequate training, substance abuse, fatigue, excessive automation and emotional problems.

These workshops were attended by experts from a variety of fields, including sewage treatment plants, chemical industry, nuclear safety, commercial aviation and other fields having to do with human factors that cause accidents and spills.

In general the finding of those workshops are as follows:

A. Spills can have a much greater impact than point source discharges. One example of two styrene spills in the St. Clair River told us that the pollution loading of styrene of those spills represented 1428 and 58 years respectively than one year of a point source discharge. If this example is typical, we need to make some basic changes in the way in which we manage water quality.

B. Data bases on spills are completely inadequate. We need better information in order to have a more intelligent response to the task of preventing spills.

C. Programs designed to prevent spills are inadequate or nonexistent. Accidents or incidents arising from human error are not adequately addressed.

D. Finally, social values play an important role. In fact it was a Congressional leader, Congressman Mineta, who pointed out that it is no accident that we have on the order of 150 fatalities per year in the commercial aviation system, and 50 thousand fatalities on our highways. The fact that we have 3000 or more spills on the Great Lakes is also no accident. It is happening because our social values-at least at the moment- don't represent that kind of priority.

3) WHAT IS BEING DONE TO PREVENT SPILLS.

Not enough is being done to PREVENT spills. Nearly all of our contingency planning is directed to the clean-up of spills after they occur, and most of that relates to oil spills. Since we are talking about the Great Lakes, it is very important-at this point-to distinguish between spills that occur on tributary streams sufficiently upstream from a lake to allow capture of the pollutant before it reaches the lake. This is possible with some spills, but a large chemical spill, especially one which occurs on, or very near one of the Lakes is virtually impossible to clean up, and if it occurs near one of the many intakes to a city drinking water system may put that system out of commission for a very long time and may require extremely expensive measures to provide substitutes for drinking and cooking water and other protective measures.

Most spills occur in the transportation system.

In the area of fixed facilities, there are some programs designed to prevent spills under the Federal Water Quality Act and under SARA Title III, but there is no evidence these programs have been effective.

4) WHAT NEEDS TO BE DONE TO PREVENT SPILLS ??

In answering this question, it is necessary to make certain assumptions. These are as follows:

a) Preventing spills to protect the Great Lakes requires a different set of policies than elsewhere, because of the unique connection between the Lakes and their ecosystem. In a sense the Lakes are the center of the metabolism of its cities and its ecosystem. A serious spill can do much more permanent harm there than elsewhere where the hydrology of tidal systems or flowing streams enhance flushing and cleansing.

b) Protecting the ecosystem is a bi-national problem and it therefore needs to be addressed as such.

c) We know pitifully little about the causes of spills and therefore need to separate our initial and prompt response to dramatically reduce risk from long-term solutions which will hopefully be based on better information.

d) Based on what we know from other fields we can safely assume that human factors as a group are likely to turn out to be a major cause. If we accept that, it gives us important guidelines for future preventive action.

The normal strategy of regulation, penalties, enforcement actions are not likely to be successful in solving a significant part of the problem. When dealing with human problems they need to be dealt with in a human approach. We are fortunate to be able to learn from the field of commercial aviation.

In that field,so much has been done to enhance the relationship between the human and the machine that commercial aviation is the safest form of transportation available to us today. What pilots know, what the FAA knows, what the airlines know, can fairly promptly be translated into action into the field of transporting hazardous material, petrochemicals and managing the on-land operations of facilities that may severely damage the Great Lakes ecosystem.

RECOMMENDATIONS:

I recommend that:

1) Congress pass legislation that would create a National Great Lakes Spill Prevention program which is composed of three major elements.

The first element provides funding for an Office to coordinate federal agencies in the US government effort of implementing the program and to provide financial assistance to: 1) federal, state and local agencies to carry out the program and 2) to universities and private industry for research and training of specialists in the science of spill prevention.

The science of spill prevention is new. It is a science that requires bringing together many technologies and skills - in the field of psychology and social work, in the field of human factors, in the field of transportation engineering and in many other fields. We need the trained individuals who are knowledgeable and skilled to implement this effort.

Since we are talking about the protection of drinking water and ecosystems, the one place in the federal government where this effort needs to be coordinated and implemented, is probably the EPA. If so, that will require a rewriting of Section 118 of the Federal Water Pollution Control Act, which created the Great Lakes National Program Office, and give them the kind of strength that is necessary to exert the leadership in this field.

The second element of the program relates to the control of transportation systems. It is essential that all federal agencies be coordinated by the proposed office and that positive command and control systems covering all shipments of toxic chemicals whether by air, rail, pipeline, vessel or by truck are authorized and implemented. Using modern satellite systems that kind of technology should be no particular problem. This element of the program should also include extension of pilotage requirements to the entire Great Lakes system and designating safety zones around drinking water intakes. I enclose copies of the 1989 recommendations of the IJC Technology Committee which are more detailed in this area.

The third element is a program designed to prevent surreptitious spills using appropriate investigative and inspection and enforcement techniques.

2) Congress urge the Administration to amend the Great Lakes Water Quality Agreement and provide funds for the following:

Assign the International Joint Commission responsibility for installing and operating a Great Lakes Spill Data System and preparing an annual report and recommendations regarding the prevention of spills in the Great Lakes. The system should be designed to coordinate information about spills and near misses, analyze and report causes, including human factors.

Amend the Terms of Reference for Joint Institutions in the Agreement to create a Transportation Safety Board whose function is to make recommendations to the IJC regarding:

A) The joint regulation and management of all forms of transportation in the Great Lakes Basin which will attain a goal of reducing the number of spills and surreptitious discharges in the basin by 50 % each year beginning in 1991.

B) Joint Institutions including the need for a Great Lakes Bi-national Coast Guard to manage navigation and pilotage.

What I have proposed here is only an interim and partial solution -a band aid, if you will. The Water and Ecosystem management in the Great Lakes represent the metabolism of the economic and social life of two nations. Population growth economic development, and technological change, particularly the use and misuse of chemicals, have brought both Canada and the United States to the edge of an abyss that may disable or destroy one of the Lakes or one of our cities.

To address this problem requires immediate and thoughtful attention by the Congress and the Canadian Parliament as well as the executive branches on both sides to answer fundamental questions in the area of transportation and environmental policy. For example; it raises the question of which mode of transportation for hazardous materials is likely to be the safest as far a spill prevention in the Great Lakes is concerned. This question has not been examined adequately.

These questions also have significant economic and social consequences for both countries. I hope that the leadership of both countries will jointly formulate these questions and create joint institutions designed to answer them.

There is no reason why the IJC cannot assume that task. It has in the past shown international leadership in the management of the waters which cross international boundaries. However, in recent years it has received only meager attention and support from both governments.

If it is to assume this task of recommending new policies and institutions it will need more than the assignment. It will need better support in terms of staffing and budget to address this complex task.

EXCERPT FROM SCIENCE ADVISORY BOARD
OCTOBER 1989 REPORT

SUMMARY OF RECOMMENDATIONS (page XII)

SPILLS

10. The Commission advise the Parties of the urgent need to implement spill prevention programs in the Great Lakes basin.

It is further recommended that such programs comprise:

- research on human-machine interface
- a uniform and comprehensive spill reporting system
- a Great Lakes spill prevention system
- a basinwide hazardous substances transportation command and control system, which provides real-time tracking and control of all hazardous substances

11-The Commission biennially evaluate and report on the effectiveness of the spill reporting system

12. The Commission convene a Biennial Spill Prevention Conference

13.The Commission prepare an annual report and recommendations regarding the prevention of spills

14. the Commission request early, joint consideration and implementation bythe Parties of the measures to protect critical ecosystem sites and drinking water systems from illegal discharges and spills due to navigational accidents, errors or other causes, including:

- Sealing all overboard valves upon entering the Great Lakes, unsealing only under Coast Guard supervision
- Posting notice of approved onshore pumping locations for waters contaminated by hazardous substances
- Improving communications and tracking of vessels with hazardous cargoes
- Having vessels with hazardous cargoes, ballast and bilge water accompanied by qualified pilots who have the authority to control vessel maximum speed and course and who have charts of drinking water intakes and of designated ecologically sensitive zones
- Designating safety zones around drinking water intakes and ecologically sensitive areas which are off limits to vessles carrying hazardous substances, ballast and bilge water
- Early joint consideration and action to determine the extent of and address substance and alcohol abusing among transportation workers
- Revision Parties of the Definition in Article I oRevised 1978 Water Quality Areement in accordance with the recommendations of the Technological Committee.

Great Lakes Science Advisory Board's Technological Committee
Report to the International Joint Commission

Spills: The Human-Machine Interface

Proceedings of the Workshops on Human Machine Interface

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1.0 EXECUTIVE SUMMARY

Manufacturing and related urban growth processes in the Great Lakes basin have resulted in an estimated 3,000 significant spills of toxic contaminants annually. Many of these spills contribute significantly to the toxic burden in the Great Lakes basin and there exists the potential for a catastrophic accident that might do permanent damage to one of the lakes. Spills are often caused by a breakdown in the complex relationships between humans and machines.

Two workshops were attended by experts in a diversity of related fields to assess concerns at the human-machine interface. The workshop members discussed sources and circumstances of accidental releases, jurisdictional responses, technological and human considerations.

The workshop participants recommended improvements in data reporting, analysis, programs and legislation and determined that special attention should be given to communications, training, education and nuclear facilities. They recommended a code of practice for prevention of spills and a specific research program.

THE WORKSHOPS

The first Human-Machine Workshop attracted participants from a wide variety of occupations: the design and operation of nuclear power plants, associated nuclear control agencies, government agencies concerned with labour and the environment, air traffic safety, the petrochemical industry and the academic community. Nearly all were knowledgeable about or expert in the human factors field.

The first workshop forwarded a number of preliminary findings to the Science Advisory Board, including identification of the following needs:

- Inclusion of human design factors in the earliest stages of facility planning.
- Better education and training of those charged with operating the facilities.
- More comprehensive reporting and data collection from incidents involving failure at the human-machine interface.
- The need for regulatory agencies to encourage more effective self-regulation, with appropriate safeguards and penalties.

The second workshop built on the preliminary findings of the first and augmented a core of participants from the first workshop with further expertise from the nuclear utilities sector, sewage treatment plant operations, labour and academic community.

In preparation for the second workshop, four working papers were commissioned. The first of these, entitled SCOPE, attempted to estimate the impacts of spills or accidental releases of contaminants in the Great Lakes basin from various sources. The second, PROGRAM, reviewed the current and possible jurisdictional responses to such releases. The third and fourth, TECHNOLOGY and PEOPLE, tried to determine how elements of these two areas influence the occurrence of accidental releases.

FINDINGS

- **Spills can have a much greater impact than point source discharges.**

There is a common misconception that the impact of spills, although a nuisance, does not compare over the long-term with ongoing point source discharges. The Canadian National Analysis of Trends in Emergencies System (NATES) database reveals a unique example involving styrene spills into the St. Clair River; two spills were found to be equivalent to the pollution loadings of 1,428 and 58 years of the respective point source discharges. The comparison indicates that accidental releases may significantly exceed the impact of regulated point source discharges.

- **Data bases on spills are inadequate.**

Existing databases on spills from basin jurisdictions are incomplete and inconsistent with respect to the data reported. Furthermore, they demonstrate a lack of liaison among jurisdictions. Currently there is no precisely defined spill inventory for the Great Lakes basin. In addition, information related to human factors, if present at all in existing records, is usually not sufficiently definitive for an analysis to identify preventive actions.

Several of the U.S. databases, particularly those maintained by the National Response Center (NRC) and the Hazardous Material Information System, are inflexible and not amenable to the access and integration of data nor for the transfer of information to the public. The Canadian federal system is of a more sound design; however, a need to enter current spill data from the Province of Ontario into the federal database was identified.

- **Programs designed to prevent spills are inadequate or nonexistent.**

Any comprehensive effort designed to prevent accidental releases, particularly of toxic substances, will require: inventories of hazardous and toxic substances and their movements; research to analyze a range of questions from total systems approaches to human factors; education and training for a wide range of responsibilities in the field as well as technological fixes; and, legislation requiring prevention, reporting, program coordination and right-to-know. There is a modicum of such program elements among the jurisdictions in the Great Lakes basin but what exists is inadequate for the task and lacks effective coordination.

The significance of spills remains difficult to determine because the term has not been clearly defined. A common definition and a common approach are needed within the Great Lakes basin.

- **Accidents or incidents arising from human errors are not adequately addressed.**

Human errors frequently arise from faulty human-machine interface design: instructions can be difficult to read, machinery can be difficult to use, controls can be inappropriate, workers can become inattentive, there can be inadequate supervision or training, automation or high technology can be inappropriately used or the allocations of functions between humans and machines can be inappropriate.

- **Social values play an important role.**

As explained by a United State Congressional leader in 1985, the public perceives a serious problem if there are 150 fatalities per year for air carriers, but exhibits little concern if there are 50,000 fatalities per year on highways. This attitude reflects a difference in values. Although data on spills are sketchy, there appears to be approximately 3,000 significant accidental releases of hazardous substances per year in the Great Lakes basin provinces and states. More attention must be given to the ways in which a society, through its institutions and values influences attitudes and conceptualizes science, technology and human life. The values that are held by people and governments regarding spills will significantly affect the degree of success achieved in addressing the deleterious impact of such releases.

RECOMMENDATIONS

All participants in the Human-Machine Workshops recommend that the International Joint Commission:

1. Data Reporting and Analysis

   - Urge the adoption of a uniform reporting format by all jurisdictions and offer to coordinate efforts to achieve such a format.
   - Work with all appropriate jurisdictions to develop and use a uniform definition of a spill for reporting purposes.
   - Monitor and report on the quantities, trends and causes of spills in greater detail in reports on water quality, including advocating adequate reporting of human factors data.
   - Promote the compilation of an inventory of all hazardous materials, including hazardous wastes, in the basin. Such an inventory should include the production, use and disposal of radioactive material and the associated transportation activities.

2. Program and Legislative Initiatives

   - Encourage a consideration of the question of responsibility and liability in the event of disasters involving hazardous substances.
   - Encourage national and international emergency prevention plans that would obligate Great Lakes jurisdictions to provide resources and guidance to local communities. This would allow appropriate authorities to take the lead in planning and executing emergency responses and in developing plans that: a) prevent or minimize the risk of spills; b) are proactive as well as reactive; and, c) collect, using established or common procedures, comparable data with respect to spills, hazard identification and response protocols.

3. Fostering of Legislation

   - Define or at least outline the essential elements of acceptable right-to-know legislation and advocate that all Great Lakes states and provinces enact comparable legislation. Such legislation should include, as a minimum, hazardous substance identification, quantities, locations and chemical forms and modes of human health impact.
   - Encourage the development of legislation to allow the worker or operator to refuse to execute nonroutine tasks that could result in the discharge of a deleterious substance into the environment.

- Encourage the appropriate jurisdictions to impose a statutory duty to report all spills meeting an agreed basinwide definition (in some jurisdictions legislation such as is proposed above has already been enacted or is under consideration).

4. Special Attention Directed to Nuclear Facilities

- Given the prevalence of nuclear power generating facilities and related activities in the basin, consider reestablishing the Committee on Radioactivity to monitor developments in this sector.

5. Training, Education and Communication

- Ensure that various concepts of risk and methods of risk assessment be debated publicly. The Commission, by advocating a public component to risk assessment, could ensure that all risk discussions consider societal as well as individual risks. The combined risk of human and animal exposure by means of air, skin, food and drinking water sources would thus be considered.

- Promote the development of a uniform basinwide or North American pollution hazard information system for use on warnings, labels, placards, displays and material safety data sheets. For easy and effective recognition, such warnings should be nonverbal.

- Advocate a total systems approach, including special attention to human factors engineering, in the education of professionals both early in the design of new systems or equipment and in the retrofit of older systems or equipment.

- Promote development of a formal communication system directed at all potential polluters to assure that guidance information on human error, prevention, human factors design criteria and technology transfer would be considered on a timely basis.

- Encourage the jurisdictions to engage in public education programs related to the reporting and prevention of accidental releases. The public should be further educated on the impact on the environment of inappropriate personal waste disposal habits. Simultaneously, viable options for the disposal of hazardous goods or household products should be presented.

- Urge that there be a provision for confidentiality where appropriate, particularly in the investigation of a narrowly averted spill or near accident. The focus should be on prevention rather than remediation.

6. Code of Practice for Prevention of Spills

- Promote a Code of Practice for the prevention of spills in basin facilities containing the following elements:

  - Senior management or its equivalent must set standards for the organization and must repeatedly reflect a commitment to those standards. The evolution of a corporate ethic is crucial to an effective pollution control and prevention program. Knowledge crucial to pollution prevention and control should be shared freely within the organization.

- Every attempt should be made to include the operators in the design of equipment and facilities.
- Training should encompass not only how a machine works from an operator's perspective, but also how people interact with the machine. The importance of the operator should be recognized and acknowledged through job enrichment and a diversity of challenges. Training should be enhanced to communicate broader pollution concerns, including the legal restrictions and their rationale, and the collective consequences of individual actions.

7. Research Initiatives

- Encourage the use of a total systems approach, including human factors and socio-technical considerations, with respect to Great Lakes pollution problems.
- Sponsor or advocate research on selected pollution incidents, using specialists in human factors and socio-technical systems to determine causal factors in pollution discharges.
- Study human factors data gleaned from upgraded databases and initiate research on preventive measures and the development of specific human factors design criteria. These criteria can be applied to pollution alarms, pollution monitoring systems annunciators and other instrumentation to ensure that releases of pollution are controlled at the source.
- Sponsor or recommend studies to ensure that new technology is implemented only after a deliberate and effective allocation of functions to both humans and machines. Appropriate information about the system and cognitive support, in a form intelligible to the user, should be included in the design.
- Recommend and support research to determine the relative contribution of accidental releases to the total pollution of the Great Lakes basin.

On the basis of the findings and conclusions formulated in connection with the Human-Machine Workshops and considering both long-term cumulative effects and the potential disasters, the workshop participants and the Science Advisory Board concluded that spills may, in some cases, have a greater impact on the Great Lakes than the cumulation of all point source discharges. It concludes further that data on spills and programs designed to prevent spills are inadequate or nonexistent. Also, the contribution of human error to spill incidents is not adequately addressed and that the lack of social perception of the importance of the problem is reflected in the inadequacy of current preventive and remedial efforts.

In summary, the workshop participants and the Science Advisory Board recommend that:

- The Commission urges the Parties to adopt a uniform and comprehensive reporting system for the spills of hazardous substances and hazardous wastes, and should offer to coordinate the attainment of such a system.

- The Water Quality Board monitor and report in greater detail on the quantities, trends and causes of spills.

- A methodology to evaluate the ecosystemic effects of spills be developed by the Science Advisory Board's Ecological Committee.

- The Commission investigates the issues of responsibility and liability in the event of a disaster resulting from a major spill in the Great Lakes Basin Ecosystem, in accordance with Annex 9 of the Water Quality Agreement. The Commission should ensure that there is a unified international emergency prevention plan that encourages Great Lakes jurisdictions to establish a clear delineation of responsibility and provides resources and guidance to local communities, thus minimizing the risk and impacts of spills.

- The Commission encourages the adoption of right-to-know and right-of-refusal legislation in jurisdictions throughout the basin. The Commission also encourages research and the reporting and prevention of spills and research, communication and training in systems and human factors engineering, risk analysis, pollution hazard information systems and the appropriate uses of automation.

- The Commission promotes the development of a corporate ethic with respect to the ecosystem and associated codes of practice for persons involved in the design of technical systems, operator training, human motivation and interaction in work situations.

TESTIMONY OF CAPTAIN THOMAS J. SCHNELL, DISTRICT 2 PILOTS BEFORE THE SENATE OVERSIGHT OF GOVERNMENT MANAGEMENT SUBCOMMITTEE.

SEPTEMBER 6, 1989

SENATE DIRKSEN BLDG.

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U.S. SENATE HEARING
SUBCOMMITTEE ON OVERSIGHT OF GOVERNMENT MANAGEMENT
SEPTEMBER 6, 1989

MY NAME IS CAPTAIN THOMAS SCHNELL AND I AM A U.S. REGISTERED PILOT FROM DISTRICT 2. DISTRICT 2 IS THE DESIGNATED PILOTAGE POOL ORGANIZATION FOR THE WATERS OF THE GREAT LAKES, FROM PORT HURON, MICHIGAN TO BUFFALO, NEW YORK. THIS INCLUDES THE ST. CLAIR RIVER, LAKE ST. CLAIR, THE DETROIT RIVER, AND ALL OF LAKE ERIE.

I WANT TO THANK SENATOR CARL LEVIN FROM MICHIGAN, SENATOR GLENN FROM OHIO, AND OTHER MEMBERS OF THIS COMMITTEE FOR INVITING ME TO SPEAK AT THIS HEARING. HOPEFULLY MY COMMENTS WILL CONTRIBUTE TO THE DIRECTION OF YOUR POSITION ON GREAT LAKES PILOTAGE.

I HAVE BEEN A PILOT FOR ELEVEN YEARS AND HAVE WORKED IN THE MARINE INDUSTRY FOR TWENTY SIX YEARS, ON OCEAN GOING AND GREAT LAKES VESSELS. I CAME UP THROUGH THE HAWUSEPIPE, BEGINNING AS A ORDINARY SEAMAN, PROGRESSING TO MY CURRENT POSITION, WHICH I FEEL IS THE ULTIMATE JOB IN THE INDUSTRY, SO I FEEL I KNOW MOST OF THE ASPECTS OF LIFE AT SEA.

MANDATORY PILOTAGE IN CONFINED, CONGESTED, AND RESTRICTIVE WATERS, SUCH AS HARBORS, RIVERS, AND NARROW CHANNELS HAS BEEN ONE OF THE GREATEST SAFETY AND ENVIRONMENTAL FACTORS DOWN THROUGH THE AGES OF MARINE OPERATIONS. UNTOLD NUMBERS OF COLLISIONS, GROUNDINGS, SINKINGS, HUMAN LIFE AND PROPERTY HAS BEEN AVERTED BY THE USE OF COMPETENT PILOTS.

BASICALLY WHAT PILOTAGE MEANS IS THAT EXPERIENCED COMPETENT SHIP HANDLERS WHO HAVE BEEN WELL TRAINED, AND WHO HAVE AN EVERYDAY WORKING KNOWLEDGE, PLUS A COMPLETE FAMILIARITY WITH THE WATERS CONCERNED, DIRECT THE NAVIGATION INCLUDING DOCKING OF VESSELS IN HARBORS AND NARROW WATERS. FOR THOUSANDS OF YEARS THIS PILOTAGE SYSTEM HAS PROVIDED A SAFE AND PRACTICAL MEANS OF HANDLING MARINE TRAFFIC.

ALL MARITIME NATIONS, INCLUDING THE UNITED STATES OF AMERICA, HAVE PILOTAGE LAWS AFFECTING WATERS WITHIN THEIR BOUNDARIES. THESE LAWS ARE CONTROLLED AND ADMINISTERED BY BOTH FEDERAL AND STATE GOVERNMENTS. IN ISOLATED CASES, CITIES OR MUNICIPALITIES GOVERN PILOTAGE. IN ALL CASES, HOWEVER, PILOTAGE IS REGULATED AND CONTROLLED BY RESPONSIBLE AUTHORITY.

IN 1960 WHEN CONGRESS ENACTED THE PILOTAGE ACT, IT RECOGNIZED THE SPECIAL AND UNIQUE CHARACTER AND NEEDS OF THE GREAT LAKES, AS FAR AS PILOTAGE SERVICES ARE CONCERNED. BASICALLY, NOTHING HAS CHANGED SINCE THEN. WHEN THE ST. LAWRENCE SEAWAY OPENED THE GREAT LAKES TO FOREIGN SHIPS, THE SAFETY OF EVERYONE AND EVERYTHING (WATERS, MARINE LIFE, SHORES, PEOPLE, SHIPS, CARGOES, OWNERS, OPERATORS, CREWS AND BUSINESS) ALL DEMANDED THAT THE SHIPS BE MOVED SAFELY, PROMPTLY, AND EFFICIENTLY. THE UNITED STATES AND CANADA, PART OF WHOSE COMMON BORDER RUNS THROUGH THE MIDDLE OF FOUR OF THE FIVE GREAT LAKES, MADE THE LOGICAL AND MOST SENSIBLE RESPONSE OF REQUIRING PILOTAGE. IN THE UNITED STATES, WHERE EIGHT (8) STATES BORDER ON THE GREAT LAKES, CONGRESS ORDAINED THAT IN ORDER TO PROVIDE COMPETENT PILOTAGE SERVICE, PILOTS MUST BE FEDERALLY LICENSED. AND OFFICIAL PILOTAGE POOLS DESIGNATED, SO THEY CAN BE PROPERLY SUPERVISED AND MONITORED. CONGRESS ALSO ORDAINED THAT PILOTAGE SERVICES SHOULD NOT BE PAID FOR BY TAX DOLLARS, BUT BY THE USERS OF THE SERVICE, AND THEREFORE, DETERMINED THAT PILOTAGE SERVICES WOULD BEST BE FURNISHED BY PRIVATE ENTERPRISE WITH THE RATES GOVERNED BY CONGRESS THROUGH THE DEPARTMENT OF TRANSPORTATION, A CONCEPT SIMILAR TO PRIVATE ENTERPRISE PUBLIC UTILITIES.

AS NOTED, THERE HAS BEEN NO CHANGE IN THE UNDERLYING REASONS WHICH PROMPTED THE UNITED STATES AND CANADA TO REQUIRE PILOTAGE FOR FOREIGN SHIPS IN THE GREAT LAKES AND WHICH PROMPTED CONGRESS TO ESTABLISH A FEDERALLY REGULATED, PRIVATE ENTERPRISE PILOTAGE SYSTEM FOR U.S. PILOTS. IF ANYTHING, THE UNDERLYING REASONS HAVE INTENSIFIED. THE SHIPS ARE LARGER AND CARRY MORE DRAFT, VESSELS THEMSELVES ARE MORE COMPLEX, MORE AND MORE OF THE SHIPS CREWS SPEAK VERY LITTLE OR NO ENGLISH, THE QUANTITY OF ALL KINDS OF RECREATIONAL BOATING TRAFFIC IS MUCH GREATER, ESPECIALLY IN THE DESIGNATED WATERS OF DISTRICT 2, AND THE ENVIRONMENTAL AND SAFETY ISSUES ARE STRONGER AND MORE COMPLEX. NO EVIDENCE IS REQUIRED TO DEMONSTRATE THIS IS NEEDED. IN LIGHT OF THE EXXON VALDEZ, ANY SHIPPING ACCIDENT ON THE GREAT LAKES IS FRAUGHT WITH POTENTIAL CATASTROPHIC INJURIES TO PERSONS, PROPERTY OR THE ENVIRONMENT, AND ANY RELAXATION IN THE SYSTEM WHICH SACRIFICES THE IMMENSE SAFETY FACTOR IN THE NAME OF ECONOMY IS WRONG AND SHOULD NOT BE TOLERATED. REMEMBER, ANY SAVINGS TO THE SYSTEM WOULD BE REALIZED BY FOREIGN SHIP OWNERS, WHILE DISASTER, THAT WOULD REQUIRE A CLEAN UP, WOULD BE AT THE COST OF U.S. AND CANADIAN TAX PAYERS.

"B" CERTIFICATES

IN 1986, THE DEPARTMENT OF TRANSPORTATION INITIATED A STUDY OF THE GREAT LAKES PILOTAGE SYSTEM. AN INTRA-AGENCY STUDY TEAM WAS ESTABLISHED, COMPOSED OF OFFICIALS OF THE COAST GUARD, THE MARITIME ADMINISTRATION THE SEAWAY DEVELOPMENT CORPORATION, AND OFFICE OF THE SECRETARY. AMONG THE ITEMS REVIEWED IN THE STUDY WAS THE USE OF B CERTIFICATES. ALTHOUGH THE VAST MAJORITY OF COMMENTS SUBMITTED TO THE STUDY TEAM OPPOSED B CERTIFICATES, IT WAS APPARENT FROM THE VERY START OF THE STUDY PROCESS THAT AT LEAST A MAJORITY OF THE TEAM'S MEMBERS SUPPORTED B CERTIFICATE. IN FACT , AN INITIAL DRAFT REPORT OF THE STUDY

RELEASED ON MARCH 14, 1988 CONTAINED A PROPOSAL THAT THE UNITED STATES SHOULD ISSUE THE EQUIVALENT OF B CERTIFICATES TO FOREIGN MASTERS.

A GREAT LAKES NAVIGATIONAL CERTIFICATE, OR B CERTIFICATE AS IT IS COMMONLY REFERRED TO, IS ISSUED BY THE CANADIAN GOVERNMENT TO FOREIGN MASTERS WHO MEET THE FOLLOWING REQUIREMENTS:

1.) THREE ROUND TRIPS ON THE GREAT LAKES
2.) SPEAK ENGLISH
3.) PASS AN ORAL EXAM

THIS CLEARLY MAKES A MOCKERY OF THE U.S. COAST GUARD'S EQUATION FOR THOSE OF US WHO HAVE INVESTED LITERALLY YEARS OF TRAINING AND PRACTICAL EXPERIENCE TO MEET THE MINIMUM REQUIREMENTS TO OBTAIN A FIRST CLASS PILOTS LICENCE, NOT EVEN MENTIONING THE REQUIREMENTS TO BE A U.S. REGISTERED PILOT.

THE FINAL REPORT OF THE STUDY WAS ISSUED ON DECEMBER 7, 1988. IN THAT REPORT, THE STUDY TEAM CONCLUDED THAT THE B CERTIFICATE "PROVIDES AN ACCEPTABLE ALTERNATIVE" TO LICENSED PILOTAGE REQUIREMENTS. (PAGE 19). FURTHER, THE REPORT STATED:

> THE UNITED STATES SHOULD CONTINUE TO RECOGNIZE THE CANADIAN B CERTIFICATE WHILE WORKING TO STRENGTHEN ITS CERTIFICATE AS APPROPRIATE. THE UNITED STATES COAST GUARD SHOULD STRENGTHEN ITS ENFORCEMENT OF THE USE OF THE CANADIAN B CERTIFICATES IN U.S. WATERS.

IT IS NOT CLEAR WHAT THE LAST SENTENCE IN THE ABOVE PASSAGE MEANS. OUR UNDERSTANDING IS THAT THE STUDY TEAM BELIEVES THAT THE COAST GUARD SHOULD TAKE AN AFFIRMATIVE ROLE IN ADVISING VESSEL OPERATORS THAT THE UNITED STATES RECOGNIZES AND ENCOURAGES THE USE OF THE CERTIFICATES AS AN ACCEPTABLE ALTERNATIVE TO LICENSED PILOTAGE.

THE PROPOSAL IN THE ORIGINAL DRAFT, THAT THE UNITED STATES ISSUE B CERTIFICATES, WAS NOT ADOPTED IN THE FINAL REPORT. ACCORDING TO THE LATTER " THE STUDY TEAM DOES NOT RECOMMEND THAT THE UNITED STATES BEGIN ISSUING A B CERTIFICATE AT THIS TIME". THE FINAL REPORT STRESSED, HOWEVER, THAT THIS DECISION WAS NOT THE RESULT OF A RECONSIDERATION OF THE SAFETY ASPECTS OF THE B CERTIFICATE PRACTICE. THUS THE STUDY TEAM DOES NOT BELIEVE THAT THE ISSUANCE OR USE OF A U.S. B CERTIFICATE WOULD CONSTITUTE A SAFETY PROBLEM. HOWEVER, IT WOULD BE DUPLICATIVE OF THE CANADIAN B CERTIFICATE. (PAGES. 20-21)

THE REAL REASON FOR THE DECISION TO ABANDON THE PROPOSED U.S. B CERTIFICATE, HAD MORE TO DO WITH THE COMPLAINTS OF THE VESSEL OPERATORS, WHO SAID IT WOULD BE TO DIFFICULT TO OBTAIN A U.S. B, BECAUSE THE STANDARDS ARE TOO HIGH. ANOTHER REASON HAD TO DO WITH DOUBTS AS TO THE LEGALITY OF THE PROPOSED PRACTICE OF ISSUING A LICENSE TO A FOREIGN MASTER, WHO ISN'T

A CITIZEN OF THE UNITED STATES.

THE EXPLANATION OFFERED BY THE STUDY TEAM FOR ITS SUPPORT OF THE B CERTIFICATE IS THAT THIS ALTERNATIVE TO LICENSED PILOTAGE SHOULD REDUCE COSTS FOR THE OPERATORS OF THE FOREIGN-FLAG SHIP USING THE GREAT LAKES. EVEN ACCEPTING THE REPORT'S SIMPLISTIC COST ESTIMATES, HOWEVER, THE SAVINGS ARE INSIGNIFICANT. MOREOVER, SEVERAL OF THE COMMENTS SUBMITTED TO THE STUDY TEAM ATTEMPTED TO DEMONSTRATE THAT SUCH SAVINGS ARE ILLUSORY AND THAT, IN FACT, THE WIDESPREAD USE OF B CERTIFICATES WOULD PRODUCE MORE THAN OFFSETTING INCREASES IN REMAINING PILOTAGE COSTS. EVEN IF THERE WERE SIGNIFICANT SAVINGS IN OPERATOR'S COSTS, COST REDUCTION SHOULD NEVER BE A MORE IMPORTANT OBJECTIVE THAN ASSURING THE HIGHEST PRACTICAL LEVEL OF NAVIGATION SAFETY. RESPONSIBLE REGULATION OF SHIP NAVIGATION PRACTICES SHOULD INVOLVE SOMETHING QUITE DIFFERENT THAN "SEARCHING FOR ACCEPTABLE ALTERNATIVES" TO PILOTAGE AND OTHER SAFETY REQUIREMENTS FOR THE PURPOSE OF SAVING OPERATORS OF FOREIGN FLAG SHIPS SOME MONEY. THE STUDY TEAMS PRIORITIES IN THIS RESPECT WERE MISPLACED. WE SHOULD NOT SUCCUMB TO SPECIAL INTERESTS GROUPS WHOSE MOTIVES ARE SHORT TERM MONETARY GAIN AT THE LONG TERM COST OF OUR ENVIRONMENT.

THE FINAL REPORT CERTAINLY INDICATES THAT THE STUDY TEAMS CONSIDERATION OF THE SAFETY ASPECTS OF THE B CERTIFICATE PRACTICE WAS NEITHER THOROUGH NOR OBJECTIVE. ALTHOUGH UNITED STATES PILOTS FROM ALL THREE DISTRICTS ATTEMPTED TO RELATE SERIOUS, UNSAFE CONDITIONS THAT USE OF THE CERTIFICATES HAVE CREATED IN THE PAST, THAT INFORMATION WAS DISMISSED AS MERELY ANECDOTAL. THERE ARE, HOWEVER, DOCUMENTED ACCIDENTS THAT HAVE OCCURRED INVOLVING SHIPS SAILING WITHOUT A PILOT UNDER A B CERTIFICATE. THAT AVENUE OF INQUIRY WAS NOT PURSUED WITH ANY APPARENT DILIGENCE. HOWEVER. INSTEAD, THE REPORT STATES "AVAILABLE STATISTICAL EVIDENCE DOES NOT DEMONSTRATE ANY INCREASED SAFETY PROBLEMS ASSOCIATED WITH THE USE OF THESE CERTIFICATES AT PRESENT". WE FEEL THAT THE D.O.T. WOULD HAVE DIFFICULTY CONVINCING THE TWENTY SEVEN WIDOWS LEFT BY THE COLLISION, AND SUBSEQUENT SINKING, OF THE SS CEADERVILLE WITH THE B CERTIFICATE VESSEL, TOPSDALEFJORD, OF THIS. WITH RESPECT TO THE WISDOM OF THE DEPARTMENTS SUPPORT FOR THE B CERTIFICATE, HOWEVER, ONCE SUCH AN ACCIDENT HAPPENS, THE PRIOR ACCIDENT RECORD OF SHIPS MOVING UNDER B CERTIFICATES WILL BE AS RELEVANT AND COMFORTING AS THE FACT THAT TANKERS IN THE ALASKAN OIL TRADE MADE 8,600 TRANSITS OF PRINCE WILLIAM SOUND WITHOUT A MAJOR OIL SPILL BEFORE THE GROUNDING OF THE EXXON VALDEZ.

ON JANUARY 11, 1909, A TREATY WAS SIGNED IN WASHINGTON D.C. BETWEEN THE UNITED STATES AND GREAT BRITAIN (CANADA AT THAT TIME BEING A DOMINION OF GREAT BRITAIN). THIS TREATY, KNOWN AS THE WATER BOUNDARIES TREATY, ALLOWED RECIPROCAL RECOGNITION OF MARINE LICENSES OF BOTH UNITED STATES AND CANADA. THIS TREATY WAS STRICTLY A RECIPROCAL AGREEMENT FOR

DOMESTIC GREAT LAKES TRADE. NO MENTION OF FOREIGN TRADE WAS MADE IN THIS TREATY. THE SHIPPING FEDERATION OF CANADA (A TENACLE OF WORLD SHIPPING) HAS A VERY POWERFUL LOBBY IN OTTAWA AND THE GREAT LAKES PILOTAGE ACT OF 1960 WOULD NOT HAVE BEEN POSSIBLE IF THIS CONCESSION UNDER THE TREATY WOULD NOT HAVE BEEN GIVEN.

DESIGNATION OF U.S. PORTS AND STRAITS OF MACKINAC

ALTHOUGH WE WOULD LIKE TO SEE THE ELIMINATION OF THE B CERTIFICATE. WE REALIZE THAT THE WATER BOUNDARIES TREATY WOULD HAVE TO BE ABROGATED TO DO SO. THE CERTIFICATE IS ONLY GOOD FOR UNDESIGNATED WATERS. THEREFORE, THE PRACTICAL SOLUTION TO THIS PROBLEM IS THE DESIGNATION OF ALL U.S. PORTS ON THE GREAT LAKES AND THE STRAITS OF MACKINAC. ALSO THE WATERS OF GREEN BAY AND SAGINAW BAY.

WE FIND IT A CONTRADICTION THAT THE DEPARTMENT OF TRANSPORTATION WOULD CONSIDER THE AREA FROM SPECTACLE REEF WESTWARD TO SEUL CHOIX POINT AND SOUTHWARD TO POINT DETSIE AS BEING OPEN WATERS. AND NO CONSIDERATION FOR THEIR DESIGNATION AT THIS TIME. BESIDES BEING A MECCA OF RECREATIONAL BOATING. THERE IS MORE COMMERCIAL WATERBORNE TRAFFIC HERE THAN ANY OTHER AREA ON THE GREAT LAKES. THERE IS NO LESS THAN SIX OPERATING FERRY COMPANIES CARRYING THOUSANDS OF PASSENGERS ON ANY GIVEN DAY DURING THE SUMMER. NAMES LIKE CORDWOOD POINT. POE REEF. FOURTEEN FOOT SHOAL. ROUND ISLAND PASS. MACKINAC BRIDGE. MAJORS SHOAL. WHITE SHOALS, GRAYS REEF. SIMMONS REEF. ISLE AUX GALLETS. GARDEN ISLAND SHOAL. LANSING SHOAL. AND BOULDER REEF. ARE ALL TRAFFIC INTERSECTIONS OR SHALLOWS IN THE AREA BETTER KNOWN AS THE STRAITS OF MACKINAC. THIS IS THE AREA WHERE THE B CERTIFICATE VESSEL TOPSDALEFJORD COLLIDED WITH AND SANK THE SS CEDERVILLE AND THERE IS NOW A BOUY THERE TO MARK THE SPOT. KNOWN AS THE CEADERVILLE WRECK BOUY. ACCORDING TO THE PUBLICATION, THE GREAT LAKES PILOT. THE STRAITS AREA IS THE AREA OF MOST FOG ON BOTH LAKE HURON AND LAKE MICHIGAN. ONE NEED ONLY TO LOOK AT THE NUMBER OF WRECK SYMBOLS CLEARLY IDENTIFIED ON THE CHARTS TO SEE THAT THESE "OPEN WATERS" ARE OBVIOUSLY NOT OPEN AT ALL. THE CHART CLEARLY SHOWS A CUMULATIVE. HISTORICAL. STATISTICAL ANALYSIS IN PICTORIAL FORMAT THAT CAN ONLY SUPPORT OUR POSITION. THERE HAVE BEEN HUNDREDS OF COMMENTS TO THE STUDY TEAM FROM ALL ASPECTS OF THE PUBLIC SECTOR SUCH AS FERRY COMPANIES. ENVIRONMENTAL CONCERNS.FISHERMAN.PROFESSIONAL GREAT LAKES SAILORS AND OTHERS. NOT THE LEAST OF WHOM A U.S. COAST GUARD CAPTAIN OF THE PORT FROM ST. IGNACE MICHIGAN. CMMDR. R.B. HARDEN. WHOSE JURISDICTION INCLUDES THE STRAITS OF MACKINAC. RECOMMENDED IN A LETTER DATED JUNE 10. 1988 TO THE U.S. COAST GUARD AND THE STUDY TEAM. TO DESIGNATE THE STRAITS OF MACKINAC AS PILOTAGE WATERS. AN OCEAN GOING MASTER WITH A B CERTIFICATE DOES NOT POSSESS THE LOCAL KNOWLEDGE NECESSARY TO SAFELY NAVIGATE OR COMMUNICATE HIS POSITION TO ANOTHER VESSEL. AND COULD NOT POINT OUT ANY OF THE SHOAL AREAS

MENTIONED. SEUL CHOIX POINT OR POE REEF MEAN NOTHING TO THE FOREIGN CAPTAIN. TO THOSE OF US WHO PLY THESE WATERS DAILY, THIS JARGON OR LOCAL KNOWLEDGE IS USED OFTEN AND DILIGENTLY, TO RELATE OUR PASSING AND MEETING INSTRUCTIONS OR RELAY OUR POSITIONS.

THE GREAT LAKES WITH THIS CANADIAN B CERTIFICATE MAKES AVAILABLE THE ONLY NAVIGABLE WATERS IN THE WORLD THAT ALLOWS MERCHANT VESSELS OF ANY FLAG TO TRANSIT ITS WATERS AND ENTER ITS PORTS UNPILOTED.

TO COINCIDE WITH THE GREAT LAKES PILOTAGE STUDY BEING DONE BY THE U.S. DEPARTMENT OF TRANSPORTATION, THE CANADIAN GOVERNMENT, PROMPTED BY THE STRONG SHIPPING LOBBIES OF THE DOMINION MARINE ASSOCIATION AND THE SHIPPING FEDERATION OF CANADA, PROCEEDED TO CHANGE THEIR PILOTAGE LAWS AND THEIR COASTING LAWS. THE CHANGE IN THEIR PILOTAGE LAW, IN SECTION 4, ALLOWS A PERSON WHO HAS A LICENSE UNDER THE BRITISH COMMONWEALTH TO SAIL ON THE LAKES UNPILOTED AFTER ONLY TEN ONE WAY TRIPS. THERE IS NO EXAM TO BE TAKEN, HE IS JUST CLEARED FOR ALL OF THE 2500 MILES OF THE GREAT LAKES. THE ONLY OVERSIGHT ON THE TEN TRIPS IS A LETTER FROM HIS EMPLOYER STATING SO. SINCE THIS LAW CHANGE THERE HAVE BEEN TEN (10) DOCUMENTED GROUNDINGS. THE SHIPS HAVE ALL BEEN TANKER VESSELS WITH DANGEROUS CARGOES ON BOARD. WHEN QUESTIONED BY SENATE AND CONGRESSIONAL MEMBERS ON THESE DANGEROUS CHANGES, THE U.S. D. O. T. AND MR. SKINNER SAID THAT THESE CHANGES ARE ONLY FOR CANADIAN WATERS AND WOULD NOT BE VALID IN U.S. WATERS. WE CAN FURNISH THIS COMMITTEE WITH DOCUMENTED EVIDENCE TO THE CONTRARY FROM THE UNITED STATES COAST GUARD, MARINE INVESTIGATION OFFICE. THE INCIDENTS REFERRED TO ABOVE HAPPENED IN THE DETROIT RIVER, THE ST. MARYS RIVER, AND IN THE PORT OF OSWEGO, NEW YORK, AND IN THE STRAITS OF MACKINAC, ALL IN AMERICAN WATERS.

"SALTY LAKERS"

THE CHANGES IN THE CANADIAN COASTING LAWS (C-52) WERE BROUGHT ABOUT BY THE SAME LOBBYING EFFORT TO ACCOMMODATE NEWLY CONSTRUCTED CANADIAN OCEAN GOING VESSELS INVOLVED IN FOREIGN TRADE. THESE VESSELS ARE MORE COMMONLY REFERRED TO AS "SALTY LAKERS", A WORD GAME PLAYED BY THE CANADIAN SHIPOWNERS TO FOOL THE STUDY TEAM INTO THINKING THAT THIS IS SOMETHING NEW, WHEN ACTUALLY IT IS NOTHING MORE THAN AN OCEAN GOING VESSEL UNDER CANADIAN FLAG. THE CANADIANS HAVE ROUTINELY VIOLATED U.S. LAW BY REFUSING TO TAKE PILOTS WHERE REQUIRED. THE VESSELS WERE BOARDED, AND CHARGED WITH VIOLATIONS OF THE PILOTAGE ACT, BY THE U.S. COAST GUARD. HOWEVER, THESE VIOLATIONS WERE NEVER ACTED UPON BY THE U.S. JUSTICE DEPARTMENT. THE REASON FOR THIS CAVALIER ATTITUDE ON THE PART OF THE CANADIAN SHIPOWNERS IS THAT THE U.S. D.O.T. STUDY TEAM PROMISED THEM LEGISLATIVE RELIEF. WE CAN PROVIDE THIS COMMITTEE WITH PROOF OF THE D.O.T. PROMISES. THESE

VESSELS NOW HAVE A DIFFERENT FLAG UNDER THE (C-52) AND ARE MANNED WITH A CANADIAN OR INDIAN CAPTAIN, WITH CHINESE NATIONAL CREWS. WE ARE VERY DISTURBED BY THE STUDY TEAMS ATTITUDE TOWARDS THIS VERY IMPORTANT ISSUE. THE LONG TERM EFFECT COULD BE DEVASTATING TO PILOT ORGANIZATIONS SURVIVAL IN FUTURE YEARS. THIS IS NOTHING BUT AN ATTEMPT ON THE PART OF CANADIAN SHIPOWNERS TO MONOPOLIZE AND CONTROL ALL FOREIGN SHIPPING ON THE GREAT LAKES. IN THE LONG RUN IT CAN ONLY LEAD TO INCREASED COST TO LAW ABIDING USERS OF THE SYSTEM AND COULD ADVERSELY AFFECT ALL U.S. SHIPPING INTEREST AS WELL.

IT IS OUR HOPE THAT THE U.S. PILOTAGE LAWS, WHICH ARE CLEARLY DEFINED AND IN STEP WITH PILOTAGE LAWS THE WORLD OVER, WILL PREVAIL AND BE ADHERED TO. IT IS ALSO HOPED THAT CANADA'S ATTEMPT TO DICTATE LAWS FOR U.S. WATERS WILL BE IGNORED. SURELY SAFETY AND ENVIRONMENTAL NEEDS, COMMON-SENSE AND NATIONAL UNITY, WILL OUT-WEIGH THE WISHES OF THE SELFISH CANADIAN SHIP OWNERS WHO WOULD LIKE TO MAKE THEIR OWN LAWS EVEN IN THE U.S.

"PILOTAGE WAIVERS"

IN ADDITION TO THE PROVISIONS THAT HAVE BEEN INTERPRETED TO JUSTIFY THE B CERTIFICATE PRACTICE, THE PILOTAGE ACT CONTAINS A SPECIFIC EXEMPTION TO THE REGISTERED PILOTAGE REQUIREMENTS. UNDER 46 U.S.C. S9302(a), A SHIP MAY MOVE ON THE WATERS OF THE GREAT LAKES SYSTEM, WITHOUT A REGISTERED PILOT, IF THE MASTER OF THE SHIP IS NOTIFIED THAT A REGISTERED PILOT IS NOT AVAILABLE. THIS PILOTAGE EXEMPTION IS AVAILABLE FOR SHIPS MOVING ON BOTH DESIGNATED AND UNDESIGNATED WATERS, SUCH AS THE DETROIT AND ST.CLAIR RIVERS, AND ALSO THE ST. MARYS, AND THE ST. LAWRENCE. THIS WAIVER IS UNLIKE THE B CERTIFICATE IN THAT THE " B" IS ONLY GOOD IN UNDESIGNATED WATERS. THERE IS NO APPARENT LOGIC TO THIS EXEMPTION REGULATION BEING PROPOSED BY THE STUDY TEAM, EXCEPT THEIR WISH TO EXPAND ITS USE. IF IT IS UNSAFE FOR A VESSEL TO MOVE ON THE GREAT LAKES WITHOUT A REGISTERED PILOT, THE ONLY RATIONAL RESPONSE TO A SITUATION WHERE A PILOT IS NOT AVAILABLE IS TO HAVE THE SHIP WAIT UNTIL A PILOT IS AVAILABLE. IT IS THE RESPONSIBILITY OF THE REGULATORY SYSTEM TO ASSURE THAT THERE ARE SUFFICIENT NUMBERS OF PILOTS TO PREVENT OR AT LEAST MINIMIZE DELAYS DUE TO PILOT UNAVAILABILITY. THE RATE SETTING PROCESS USED BY THE D.O.T. COMPUTES THE NUMBER OF PILOTS THAT A PILOTAGE ORGANIZATION SHOULD EMPLOY, THROUGH A WORKLOAD STANDARD. FOR YEARS WE HAVE COMPLAINED THAT THE WORK LOAD STANDARD IS TOO HIGH, OR INCOMPLETE, IN THAT IT DOES NOT INCLUDE TRAVEL TIME, ONLY ACTUAL HOURS ON THE NAVIGATION BRIDGE. BECAUSE OF THE SEASONAL NATURE OF THE GREAT LAKES TRADE, WE EXPERIENCE SURGES IN TRAFFIC. USUALLY, IN THE SUMMER MONTHS WE HAVE TOO MANY PILOTS, AND IN THE SPRING AND FALL WE DON'T HAVE ENOUGH. WE HAVE NEVER EMPLOYED LESS THAN THE PROJECTED NUMBER DETERMINED BY THE U.S. D.O.T. IN FACT, UNTIL RECENTLY, WE HAVE ALWAYS EMPLOYED MORE AND WERE ABLE TO SUPPORT THEM

BECAUSE OF ADEQUATE RATES. NOW, UNFORTUNATELY, WE HAVE JUST THE EXACT NUMBER THAT WAS DETERMINED BY THE RATE SETTING PROCESS, AND AS A RESULT WE ARE UNDERMANNED FOR PEAK SURGES IN TRAFFIC. THE GREAT LAKES PILOTAGE STUDY CONTINUES TO PURSUE "ALTERNATIVES" TO LICENSED PILOTAGE AND HAVE STARVED PILOTAGE ORGANIZATIONS SINCE 1985 BY NOT GIVING THEM PROPER RATES TO SUPPORT THEMSELVES. THEY DID NOT COME FORTH WITH A RECOMMENDATION TO ISSUE A "B" CERTIFICATE BECAUSE OF ITS QUESTIONABLE LEGALITY. IT DID RECOMMEND THAT THE CANADIAN B BE EXPANDED, AND NOW HAS TAKEN THE POSITION THAT PILOTAGE WAIVERS ARE THE ANSWER TO THEIR LONG SEARCH FOR ALTERNATIVES TO PILOTAGE.

ALTHOUGH THE LEGISLATIVE HISTORY OF THE WAIVER PROVISION OF THE PILOTAGE ACT IS LESS THAN CLEAR, THE COAST GUARD HAS INDICATED THAT IT BELIEVES THAT THE PROVISION WAS INTENDED BY CONGRESS AS A CHECK ON POSSIBLE WORK STOPPAGES BY REGISTERED PILOTS. THIS WAIVER PROVISION UNDER THE PILOTAGE ACT IS UNNECESSARY AND INAPPROPRIATE. REGISTERED PILOTS ARE REQUIRED UNDER THE PILOTAGE ACT AND COAST GUARD REGULATIONS TO BE AVAILABLE FOR SERVICE AT ALL TIMES. A PILOT WHO REFUSES TO BE AVAILABLE OR REFUSES TO PROVIDE HIS SERVICES WHEN DISPATCHED MAY HAVE HIS REGISTRATION REVOKED AND BE SUBJECT TO A CIVIL PENALTY.

PILOTAGE ORGANIZATIONS SHOULD BE GIVEN ADEQUATE RATES TO SUPPORT THE PROPER NUMBER OF PILOTS NECESSARY TO PROVIDE SAFE AND EFFICIENT SERVICE. PILOTAGE WAIVERS SHOULD NEVER BE ISSUED UNDER ANY CIRCUMSTANCE. THIS MECHANISM TOTALLY DISREGARDS SAFETY AND ENVIRONMENTAL CONCERNS AND IS SOLELY A TOOL FOR FOREIGN SHIP OWNERS CONCERNS. WE CAN PROVIDE THIS COMMITTEE WITH EVIDENCE, TO SUPPORT OUR STATEMENTS.

PILOTAGE RATE SETTING PROCESS

PILOTAGE ORGANIZATIONS ARE NOTHING MORE THAN POLITICAL PAWNS WHEN BEING CONSIDERED FOR TARIFF ADJUSTMENTS. HOW MANY TIMES HAVE THE NUMBERS COME OUT SHOWING THE NEED FOR AN ADJUSTMENT, AND THE RESPONSE BEING "CANADA WILL NEVER BUY THAT?" OR YES YOU NEED A TARIFF ADJUSTMENT BUT THE ATMOSPHERE IN WASHINGTON WON'T GO ALONG. "TOO MUCH INDUSTRY PRESSURE".

THE TARGET COMPENSATION FOR PILOTS IS BASED ON GREAT LAKES MASTERS WAGES AND MATES WAGES. WE HAVE PLEADED AND WILL CONTINUE TO PLEAD THAT PILOTS SHOULD BE COMPENSATED, AS PILOTS ARE THROUGHOUT THE COUNTRY, AS PILOTS. WHY SHOULD WE BE TREATED DIFFERENTLY? MASTERS AND MATES AREN'T PILOTS, WHY IS THE REVERSE TRUE HERE?

THE WORKLOAD STANDARD IS TOO HIGH. IT IS AN UNOBTAINABLE FIGURE WITH TODAYS TRAFFIC VOLUMES. TRAVEL TIME SHOULD BE INCLUDED, OR REDUCE THE STANDARD. LAST YEAR DISTRICT 2 HAD 6900 TRAVEL HOURS, EVEN AT THE 1800 UNDESIGNATED TARGET WORKLOAD STANDARD, WE WOULD NEED AN

ADDITIONAL 4 PILOTS.

THE ESTIMATED TRAFFIC VOLUME IS THE MOST OBSCURE PART OF THE WHOLE PROCESS. THE D.O.T. WILL TAKE AND COMPUTE THE PREVIOUS YEARS DESIGNATED AND UNDESIGNATED HOURS. COMPUTE OUR ADMINISTRATIVE COSTS THAT WE NEED TO RECOVER, AND THEN SAY, IF THE TRAFFIC INCREASES TO 1978 LEVELS, YOU DO NOT REQUIRE A TARIFF ADJUSTMENT. NO ONE EVER HAS OR WILL ACCURATELY PREDICT TRAFFIC TRENDS ON THE GREAT LAKES. YOU MAY BE ABLE TO COME WITHIN TEN PERCENT ONE WAY OR THE OTHER. BUT THAT IS TEN PERCENT TO THE WHOLE GREAT LAKES SYSTEM. THE PERCENTAGES GET LARGER WHEN APPLIED TO AN INDIVIDUAL PILOTAGE DISTRICT ESPECIALLY IF THE PREDICTION IS SHORT.

CONCLUSION

THE GREAT LAKES PILOTAGE STUDY TOOK EIGHTEEN MONTHS TO COMPLETE ITS FINAL RECOMMENDATIONS. HOWEVER, IT IS STILL ONGOING. THE TOTAL DOLLAR AMOUNT IS NOT AVAILABLE AS TO THE COST OF THIS STUDY. WE OBJECT TO THE WAY THAT THE STUDY WAS DONE. THE STUDY TEAM HAS TOTALLY IGNORED THE INPUT OF PILOTS, AND OTHER PROFESSIONAL MARINE PEOPLE, ON BOTH THE AMERICAN AND CANADIAN SIDE. OUR EXPERTISE CONCERNING NAVIGATION AND PILOTAGE IS INVALUABLE WHEN CONSIDERING THE SAFETY AND ENVIRONMENTAL ISSUES OF THE GREAT LAKES AREA. OUR ACCIDENT STATISTICS SUPPORT OUR POSITION, WE DO NOT HAVE ENOUGH ACCIDENTS TO DO A STATISTICAL ANALYSIS OF OUR PERFORMANCE RECORD. THERE ARE SIXTY SEVEN U.S. REGISTERED PILOTS BETWEEN THE THREE PILOTAGE DISTRICTS. TWENTY THREE PEOPLE WERE ON THE ACTUAL STUDY. THIS IS ONE GOVERNMENT EMPLOYEE FOR EVERY THREE PILOTS. THE AMOUNT OF MONEY AND MAN HOURS EXPENDED DURING THIS STUDY SHOULD HAVE PRODUCED A COMPREHENSIVE RESULT. TO THIS DATE IT HAS NOT.

B CERTIFICATES AND WAIVERS BOTH PERMIT FOREIGN SHIPS TO MOVE ON THE INLAND WATERS OF THE GREAT LAKES SYSTEM WITHOUT A UNITED STATES OR CANADIAN PILOT. FOR SHIPS UTILIZING THESE AVAILABLE PILOTAGE EXEMPTIONS. THE UNITED STATES IS FORCED TO RELY SOLELY ON THE SHIPS' FOREIGN CREWS FOR THE PROTECTION OF NAVIGATION AND SAFETY OF THE ENVIRONMENT. THIS SHOULD BE UNACCEPTABLE. IT IS CLEARLY INCONGRUOUS, HOWEVER, FOR THE PRESENT SECRETARY OF TRANSPORTATION TO ANNOUNCE THAT HE INTENDS TO RECOMMEND STRENGTHENING THE LICENSING AND MANNING REQUIREMENTS FOR UNITED STATES FLAG SHIP OPERATIONS WHILE HIS DEPARTMENT IS SUPPORTING THE FURTHER RELAXATION OF THE LICENSING AND MANNING REQUIREMENTS FOR FOREIGN SHIPS OPERATING IN THE GREAT LAKES SYSTEM.

WE RECOMMEND THAT THE UNITED STATES DESIGNATE ALL THE PORTS ON THE GREAT LAKES AND THE STRAITS OF MACKINAC AS PILOTAGE WATERS. THIS WILL HELP PROTECT THE WATERS OF THE GREAT LAKES FROM A DISASTROUS ACCIDENT SIMILAR TO THE ONE IN PRINCE WILLIAM SOUND.

THE WAIVER PROVISION RECOMMENDED BY THE STUDY TEAM SHOULD NOT BE CONSIDERED AS AN ACCEPTABLE ALTERNATIVE TO PILOTAGE. PILOTAGE ORGANIZATIONS SHOULD BE GIVEN ADEQUATE RATES TO SUPPORT THE NUMBER OF PILOTS NECESSARY TO PROPERLY SERVICE THE NUMBER OF VESSELS CALLING ON THE GREAT LAKES.

THE GREAT LAKES PILOTAGE STUDY IS A SERIOUSLY FLAWED DOCUMENT. ITS UNDERLYING PHILOSOPHY IS THAT PILOTAGE IS TO BE AVOIDED, IF AT ALL POSSIBLE, AND WHERE IT CAN'T BE AVOIDED, IT SHOULD BE PURCHASED AS A COMMODITY AT THE CHEAPEST PRICE WITH THE LOWEST POSSIBLE STANDARDS AND LEVEL OF SERVICE.

IT IS OBVIOUS THAT THE OBJECTIVE OF THE STUDY WAS TO REDUCE COSTS TO FOREIGN FLAG SHIP OPERATORS CALLING ON THE GREAT LAKES. IT IGNORED THE FACT THAT PILOTAGE LAWS ARE ENVIRONMENTAL AND SAFETY REGULATIONS ENACTED TO PROTECT THE PUBLIC INTEREST IN THE PROTECTION OF THE ENVIRONMENT AND SHIPPING. THE STUDY FOCUSED ON THE PRIVATE INTERESTS OF SHIP OWNERS TO MOVE THEIR SHIPS WITH THE LEAST REGULATORY RESTRICTIONS AND THE LEAST POSSIBLE COSTS. WHILE COST-EFFICIENCY IS A LEGITIMATE GOAL OF THE REGULATORY PROCESS, IT SHOULD NOT BE THE PRIMARY GOAL AND ALLOWED BY PUTTING THE PUBLIC AT RISK. WE BELIEVE THE EXXON VALDEZ DISASTER RAISES ISSUES THAT ARE RELEVANT TO MANY OF THE ERRONEOUS POLICY DECISIONS CONTAINED IN THE GREAT LAKES PILOTAGE STUDY. UNDER THE CIRCUMSTANCES, THE STUDY SHOULD BE DISBANDED AND DISCREDITED. THERE SHOULD BE A PUBLIC HEARING AT A LOCATION CONVENIENT TO THE GREAT LAKES, AND AN ENVIRONMENTAL IMPACT STUDY DONE TO ANALYZE THE AFFECTS OF A MAJOR OIL SPILL ON THE GREAT LAKES.

WE AGAIN WOULD LIKE TO THANK THIS COMMITTEE FOR GIVING US THIS OPPORTUNITY TO APPEAR AND SPEAK. PLEASE DO NOT HESITATE TO CALL ON US IN THE FUTURE, IF WE CAN BE OF FURTHER ASSISTANCE IN THIS MATTER.

SINCERELY:

CAPTAIN THOMAS J. SCHNELL
U.S. REGISTERED PILOT # 251

TESTIMONY
BY
DAVID USHER
PRESIDENT
MARINE POLLUTION CONTROL
AND
A DIRECTOR OF THE
SPILL CONTROL ASSOCIATION OF AMERICA
BEFORE
SUBCOMMITTEE ON OVERSIGHT OF GOVERNMENT MANAGEMENT
HEARING ON
OVERSIGHT OF OIL SPILL PROTECTIONS FOR THE GREAT LAKES
SEPTEMBER 6, 1989
342 DIRKSEN SENATE OFFICE BUILDING
WASHINGTON, D.C.

Thank you very much, Mr. Chairman.

Mr. Chairman, my name is David Usher and I am president of Marine Pollution Control in Detroit, Michigan. I am also a director of the Spill Control Association of America.

I want to express my appreciation for the opportunity to testify before your committee.

I have been in the spill control business for about 23 years. My company has participated in the cleanup of major oil spills in all parts of the world and we are involved in the Exxon Valdez accident in Alaska.

I also would like to add that the Spill Control Association of America represents an industry composed of companies dedicated to protecting the environment and I am proud to be an officer of a trade organization which has such an outstanding record.

Having been involved in spill control for more than two decades, I have studied carefully the dynamics of oil spills, in their many facets. The Exxon Valdez is but one example, and I have had first hand experience with many incidents right in the Great Lakes.

And while much needs to be done in helping to prevent such disasters, I recommend that we not adopt unnecessary and costly measures. We must address oil spill problems with cost effective techniques and skilled personnel.

I urge careful examination of all the complexities involved in oil spills and adopting comprehensive measures which will assist and not complicate cleanup efforts.

I suggest that we create a more dynamic partnership between government, organizations like the Petroleum Industry Response Organization, which represents the oil industry, and the companies actually engaged in the cleanup of oil spills.

Each has an essential role in oil spills and this committee can help in promoting these respective responsibilities.

I suggest that government's role is to monitor and enforce the clean up of oil spills.

That is the role historically played by the Coast Guard and it has done so effectively.

It would be a serious mistake, in my opinion, for government, whether at the national or state level, to create its own cleanup forces.

As I am sure you know, such an action would require substantial expenditures and would be a duplication of what is already in place. Government should work toward eliminating duplication.

Duplication does little other than increase expenditures and cause bureaucratic bickering and confusion.

I might add that the needed equipment requires expensive maintenance and, most important, continuous use by its personnel to assure the development of expertise necessary in these catastrophes.

The private sector's continuous participation in cleanup efforts has created in the industry the professional maturity and experience necessary in these situations.

The problem is not with the lack of spill control expertise and ability; the problem is one of response time and coordination---and this is where government can help.

It can assist by assuring that response time and coordination is monitored. It can help in research and development.

In short, government---federal and state---should assist in developing administrative policies which assure the quality of private sector spill control organizations.

I was asked by a staff member to offer my views on the proposed Petroleum Industry Response Organization or PIRO as it is called in the industry.

As I indicated, I think there is a need for a partnership among all parties, a partnership which allows each participant to do what it does best.

Just as it would be a waste of resources for government to create its own strike forces, it would be a similar waste for PIRO.

I believe PIRO can assist this industry with research and development which is a prohibitive undertaking for the private sector. Indeed, it is too expensive.

It can also provide the kind of equipment not presently available in private industry, the kind that is not in the traditional cleanup inventory for use on open waters and heavy weather conditions.

PIRO can improve training of its own people, develop standard debriefings, assist in coordinating cleanup efforts and other major administrative tasks.

The major point is much needs to be done...! But we must assure that each party in the partnership is used as effectively as possible.

• Government is best at monitoring and enforcing policies. An organization like PIRO, given its resources, can do much in providing the special heavy-duty equipment needed and in assisting in the coordination of response teams.

The actual cleanup operations should be left to those professionals who have the training, experience and know-how to do it effectively.

I also want to make the point that we support the present system in which the government selects the contractor to clean up oil spills when the offending party refuses to accept responsibility or is financially unable to do so.

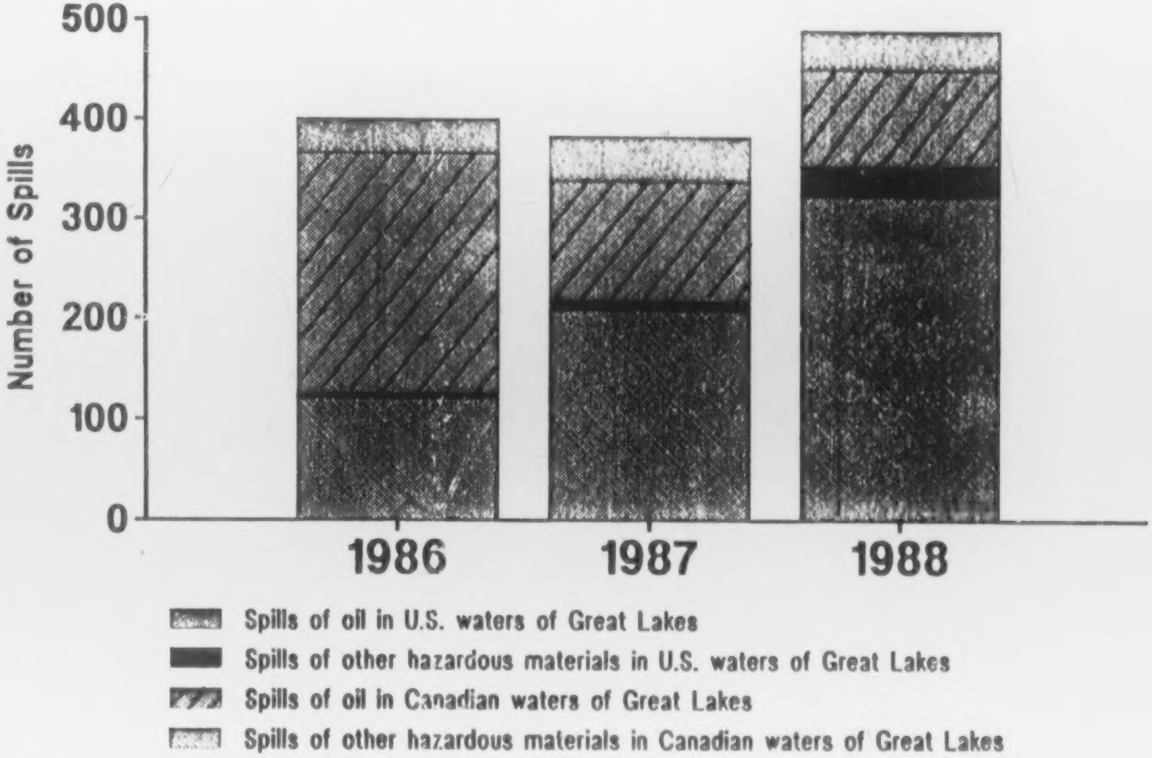
We believe this system should not be changed and the decision-making process should not be encumbered by intervention of other third parties.

As I said, I am proud to be a part of this industry. We have made substantial contributions in assisting in mitigating these disasters, sometimes in very hazardous situations.

And we are prepared to continue to do so---working with government and PIRO with each partner carrying out its responsibilities to assure a successful project.

Again, thank you for the opportunity to testify and I would be pleased to answer any questions you may have.

Great Lakes Spills, 1986–1988*



*Data taken from 1987, 1988, and 1989 Joint Canadian/U.S. Coast Guards Reports on Progress Toward Achievement of the Objectives Established by the Great Lakes Water Quality Agreement of 1978.

August 1989

GREAT LAKES SPILLS, 1986-1988*

	1986		1987		1988	
	US waters	Canadian waters	US waters	Canadian waters	US waters	Canadian waters
Oil spills:	121	242	209	121	325	98
Hazmat** spills:	4	34	9	45	30	39
Total per country:	125	276	218	166	355	137
Total annual spills:	401		384		492	

*Data is taken from the 1987, 1988 & 1989 Joint Canadian/United States Coast Guard Reports on Progress Toward Achievement of the Objectives Established by the Great Lakes Water Quality Agreement of 1978. The figures represent spills affecting the Great Lakes from either shipping or land-based activities.

**"Hazmat" means hazardous materials other than oil.

Compiled by the Senate
Subcommittee on Oversight
of Government Management

U.S. COAST GUARD SPILL DATA

	1988 OIL SPILLS	1988 HAZMAT SPILLS	1988 VESSELS SOURCE	1988 FACILITY SOURCES	1988 OTHER KNOWN SOURCES	1988 MYSTERY SPILLS
MSO BUFFALO	48	10	5	3	21/6	19/4
MSO CLEVELAND	38	0	3	10	15	10
MSO TOLEDO	18	0	3	4	5	6
MSO DETROIT	43	14	11	13/14	8	11
MSO CHICAGO	29	2	13	13/2	0	3
MSO MILWAUKEE	55	2	8	16/1	6/1	25
MSO DULUTH	20	0	6	3	4	7
COTP SAULT STE MARIE	58	0	3	4	7	44
COTP GRAND HAVEN	16	2	3	3	1/1	6/1
	325	30	55	86	75	136
FEDERAL PROJECTS 1988	20	$156,600.00				

MSO -- U.S. COAST GUARD MARINE SAFETY OFFICE
HAZMAT -- HAZARDOUS MATERIALS OTHER THAN OIL
OTHER KNOWN SOURCES -- PIPELINES, TRAFFIC ACCIDENTS, MISCELLANEOUS

August 1989

SOME OF THE WORST SPILLS AND NEAR SPILLS IN THE GREAT LAKES, 1980-1988*

DATE	LOCATION	INCIDENT
2/18/80	Michigan	Onshore pipeline spills 214,956 gallons of automotive gasoline into Great Lakes
9/3/80	Ohio	Land-based storage facility spills 147,000 gallons of crude oil into Great Lakes
10/31/81	Wisconsin	Onshore pipeline spills 94,000 gallons of automotive gasoline into Great Lakes
4/27/84	New York	Land-based storage facility spills 1 million gallons of No. 4 fuel oil into Great Lakes
8/13/84	Michigan	Manufacturing facility spills 200,000 gallons of anhydrous ammonia into Great Lakes
8/13/85	Sarnia, Canada	Chemical facility spills 10,000 gallons of dry cleaning solvent, perchloroethylene; 2500 gallons reach St. Clair River, causing "Sarnia Blob"
9/18/86	Wisconsin	Foreign flag vessel spills 500 gallons of unspecified cargo into Great Lakes near Milwaukee
10/6/86	Michigan	Waterfront storage facility spills 167,970 gallons of diesel oil; oil caught before entering water
2/26/88	Indiana	Illegal industrial waste oil storage pond spills 28,000 gallons of oil into Indiana Harbor
5/10/88	Michigan	Canadian tanker carrying oil collides with channel light in Detroit River channel; ballast water tank ruptured but no oil spilled
9/21/88	New York	US vessel spills 900 gallons of No. 2 fuel oil into Great Lakes near Oswego
3/30/89	Michigan	Canadian tank barge carrying 1.4 million gallons of toxic petroleum product, carbon black feedstock, grounds twice in Detroit River

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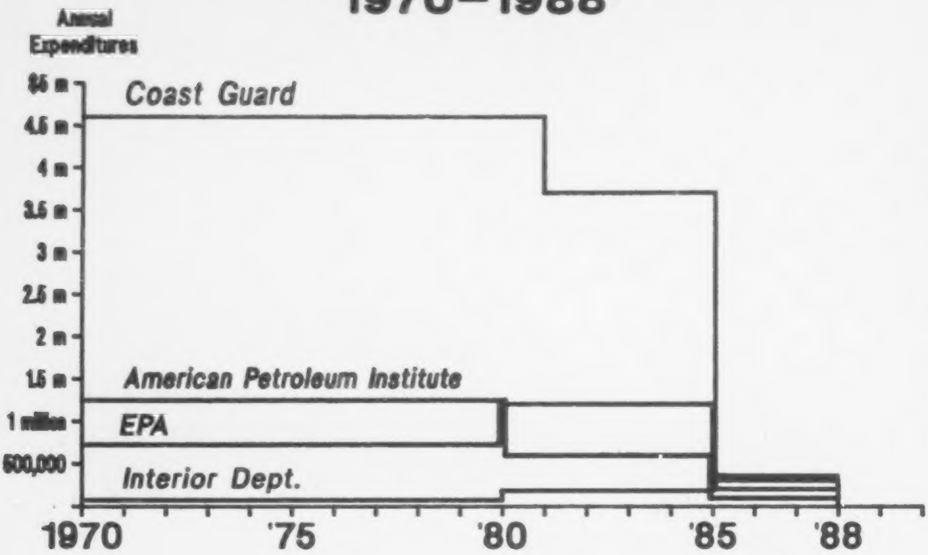
*Examples were compiled by the US Senate Subcommittee on Oversight of Government Management from partial spill data supplied by the US Coast Guard and a report on the "Sarnia Blob." The Coast Guard data covered only US Lake waters and not, for example, spills in the connecting channels or in Canadian waters of the Great Lakes. Additional spill data is being collected.

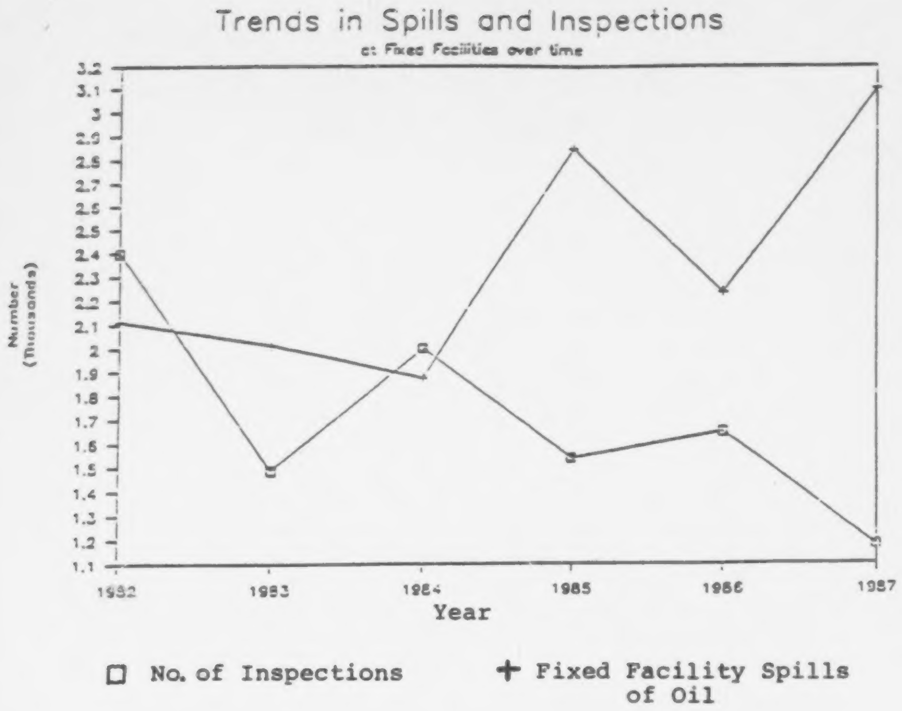
Average Annual Expenditures on Oil Spill Research Programs 1970–1988*



	1970–79	1980–84	1985–88
Coast Guard	$4.6m	$3.7m	$0.2m
EPA	$0.72m	$1.2m	$0.4m thru 1987 $0 in 1988
Interior Dept.	$0	$0.18m	$0.36m
API	$1.25m	$0.6m	$0.1m

*Data taken from testimony provided at hearing before House Subcommittee on Water, Power and Offshore Energy Resources on July 18, 1989.

Compiled By
Senate Subcommittee on
Oversight of Government
Management



Reprinted from U.S. Environmental Protection Agency's Oil Spill Prevention, Control, and Countermeasures Program Task Force Report (May 13, 1988) (p. 4-7).

COUNCIL OF GREAT LAKES GOVERNORS

7-29-89

GREAT LAKES OIL SPILL CONTROL STRATEGY AGREEMENT

The Great Lakes are a unique, fragile, and vital natural resource that we hold in joint stewardship. We have recognized their importance to our region and our commitment to protect them in the Great Lakes Charter of 1985, the Great Lakes Toxic Substances Control Agreement of 1986, the Statement of Principle Against Oil Drilling of 1986, and the Great Lakes Protection Fund Agreement of 1989.

We agree that the following steps should be taken to further protect the lakes from the potentially devastating impacts of possible oil spills and hazardous substances contamination.

- The Council of Great Lakes Governors will organize a regional hearing to elicit information and perspectives from the diversity of Great Lakes constituents (including the environmental community, business and labor groups, and government agencies) on activities that should be undertaken to enhance the region's emergency preparedness for potential oil spills within the Great Lakes.
- The Great Lakes states agree that through greater coordination efforts they will ensure that their individual environmental management plans include an emergency oil spill control strategy that will provide for quick and effective responses.
- The Great Lakes states will work with the Coast Guard and other appropriate agencies and organizations to identify potential sources of spills through Title III inventory data, as well as other sources, and to develop an inventory of basinwide resources (including personnel and equipment) that would be available to handle an emergency spill. State or federal legislation will be pursued if necessary.
- The Great Lakes states will work with EPA, the Coast Guard, the Department of Interior, the National Governors' Association, and other appropriate agencies and organizations to urge the inclusion of the lakes and sufficient revenue and staff support in national oil spill control plans.

- The Great lakes states will urge the establishment of at least one Great Lakes response center, in addition to those previously proposed by the nationwide oil industry program for prevention, containment, and clean-up of major oil spills.

We believe that these steps will help to further our protection of the Great Lakes system by providing additional means to address an emergency situation that might be created by an oil spill within the basin.

Signed this day of July 29, 1989.

Rudy Perpich

Rudy Perpich, Governor
State of Minnesota

James J. Blanchard, Governor
State of Michigan

Evan Bayh

Evan Bayh, Governor
State of Indiana

Mario M. Cuomo

Mario M. Cuomo, Governor
State of New York

Tommy G Thompson

Tommy G. Thompson, Governor
State of Wisconsin

James R. Thompson, Governor
State of Illinois

Richard F Celeste

Richard F. Celeste, Governor
State of Ohio

Robert P Casey

Robert P. Casey, Governor
Commonwealth of Pennsylvania

This policy statement was unanimously adopted by the eight Great Lakes states through action of the Great Lakes Commission at its 1989 annual meeting on November 15, 1989, in Detroit, Michigan.

POLICY STATEMENT
ON

EMERGENCY PREPAREDNESS FOR OIL AND HAZARDOUS MATERIALS SPILLS ON THE GREAT LAKES

The following policy statement has been endorsed by the Task Force on Emergency Preparedness and is offered for the consideration and approval of the Great Lakes Commission at its 1989 Annual Meeting.

Overview

The Great Lakes region encompasses an extensive and intensively used freshwater resource that provides the location for the production and transport of substantial quantities of oil and hazardous materials. As a result, the potential of a spill with devastating environmental, human health and economic consequences clearly exists in the Great Lakes region. The much-publicized *Exxon Valdez* incident in Prince William Sound has focused attention on this region's ability to anticipate, respond to and prevent oil and hazardous material spills.

Oil and hazardous materials comprise less than five percent of total St. Lawrence Seaway traffic, but these quantities are nevertheless substantial. For example, figures from the Lake Carriers' Association and Canadian Shipowners Association indicate that 81 million barrels of such materials were transported on Great Lakes waterways in 1988. Almost fifty ports on the Great Lakes either load or receive oil and hazardous materials; countless other facilities on the Lakes and connecting channels are involved in handling such materials.

The U.S. and Canadian Coast Guards reported 492 oil and toxic spills on the Great Lakes in 1988, up from 384 in 1987 and 401 in 1986. Since 1986, the U.S. share has doubled. Approximately 85% of these have been oil spills, with the balance involving toxic chemicals. Three fourths were land based and one-fourth were the result of shipping incidents. While most of the documented spills have been small in volume, oil spills of up to a million gallons and toxic spills of up to 200,000 gallons have been experienced since 1984.

The Great Lakes are uniquely vulnerable to such spills. Even quantities of only a fraction of the estimated 10 million gallons of oil released in the *Exxon Valdez* incident pose substantial threats to the Great Lakes ecosystem. The Great Lakes are a relatively closed freshwater system - a series of large lakes with long retention times. The system provides drinking water to over 25 million residents, and many of the hundreds of water supply intakes are located on connecting channels, in heavily navigated waters, or near shore-side industrial facilities where oil and hazardous materials are handled. Further, the Great Lakes Basin is a fragile, highly sensitive ecosystem that includes a thriving sport fishery and some of the world's most productive freshwater wetlands. These facts, coupled with the added difficulties in containing spills under ice or spills of water-soluble toxics, accentuate the vulnerability of the Great Lakes. Clearly, a spill of any magnitude has the potential for devastating environmental, human health and economic impacts.

Regional Response and Accomplishments To Date

The *Exxon Valdez* incident prompted considerable activity in the Great Lakes region at the federal, state, provincial and local levels. Existing emergency preparedness plans and resources were reassessed, interjurisdictional arrangements examined, and legislative, program and funding requirements defined. Much of this activity continues at present.

At the regional (interstate/provincial) level, progress has been made as well. Responding to a request from Governor Blanchard (MI), the Great Lakes Commission agreed on June 22 to facilitate a regional review of emergency preparedness, working in collaboration with the Council of Great Lakes Governors. Soon thereafter, an Emergency Preparedness Task Force was established with federal, state, provincial and regional representation. Also, on July 29 the Great Lakes Governors signed a "Great Lakes Oil Spill Control Strategy Agreement" calling for several measures to "further protect the lakes from the potentially devastating impacts of possible oil spills and hazardous substances contamination".

The Commission and Council convened the Emergency Preparedness Task Force on August 22 to develop recommendations, for a strategy and plan of work to help the region's jurisdictions strengthen their individual and collective capabilities to anticipate, respond to and prevent oil and hazardous material spills. Specific objectives included 1) developing an inventory of oil and other potentially hazardous substances transported on and stored in the Basin; 2) developing an inventory of available emergency preparedness resources in the Great Lakes; and 3) in so doing, strengthening individual federal, state and provincial programs.

FINDINGS AND RECOMMENDATIONS OF THE TASK FORCE ON EMERGENCY PREPAREDNESS

1) General Findings and Recommendations

The Task Force on Emergency Preparedness finds that:

a) Although the Great Lakes are not susceptible to the quantity of an oil or hazardous material spill such as that experienced with the *Exxon Valdez*, the Lakes are uniquely vulnerable and cause for concern exists. Among others, these include the fact that it is a virtually closed freshwater system; retention times for individual lakes are lengthy; over one-half of all Basin residents rely on the Lakes for drinking water; a great variety of chemicals are manufactured, used and transported and therefore pose spill threats; and icing-over of the Lakes can make clean-up extremely difficult.

b) Given the intensive, multiple use of the Great Lakes system, an oil or hazardous material spill of even modest proportions can have devastating, long lasting environmental, human health and economic consequences.

c) Governmental jurisdictions and industry in the binational Great Lakes Basin are not presently prepared - either singly or collectively - to adequately anticipate, respond to or prevent large scale oil or hazardous material spills.

d) Prompt and decisive action is required of all jurisdictions and private sector interests involved in the production, handling and transport of oil and hazardous materials. All concerned must develop plans and secure the authorities and resources needed to effectively carry them out.

e) A well-defined, coordinated and appropriately funded contingency plan to address oil and hazardous spills on a Great Lakes system-wide basis is of the highest priority.

It is therefore recommended that the Great Lakes states, in cooperation with appropriate provincial, federal, regional and local agencies and maritime interests, commit to improving the state of emergency preparedness on the Great Lakes as a matter of high priority.

2) Individual and Collective Response Capabilities of Great Lakes Jurisdictions

The Task Force finds that:

a) Spill prevention and response on the Great Lakes is characterized by institutional complexity (e.g., eight states, two provinces, numerous federal agencies and local arrangements). Any system-wide strategy must recognize and accommodate this.

b) A substantial (although informal) network for spill response already exists. All states and provinces, as well as applicable federal agencies, maintain plans and prevention/response arrangements, although they vary greatly in formality, detail and implementation capability. A foundation for improved prevention/response already exists and, while modest at best, suggests that efforts in the near term should be directed at securing funds and other resources to allow existing mechanisms to function properly, while at the same time exploring needs for new programs and legislation.

c) It is advisable to work through existing institutional arrangements (e.g., Regional Response Team) to strengthen prevention/response capabilities, rather than develop entirely new and separate arrangements. At the same time, however, it is recognized that some revision/adaptation of existing arrangements *might* be needed to address the uniqueness of the Great Lakes situation.

d) Capabilities and resources to address a large-scale oil or hazardous material spill are limited at both the individual and collective jurisdictional level. In some cases, state capabilities are limited to smaller tributary and on-shore spills. As another example, it is recognized that the U.S. Coast Guard, despite its monitoring, inspection, clean-up and enforcement authority, is challenged by resource limitations in maintaining an even minimally adequate prevention/response program.

e) Inadequate attention has been focused on spill prevention; this failing warrants careful consideration and correction as planning activities at all levels proceed.

To this end, the Task Force recommends that:

a) All Great Lakes jurisdictions should review, develop or update, as appropriate, spill contingency plans. Special emphasis should be placed upon prevention, regional coordination, and resource/funding requirements to ensure full implementation.

b) Appropriate state, provincial and federal agencies, through the Task Force on Emergency Preparedness or other means, should consider establishing a Great Lakes Spill Response Network or equivalent mechanism to coordinate planning activities for anticipating, responding to and preventing oil and hazardous material spills on the Great Lakes. This should include a workplan to address data collection and inventory needs (identified in a later section of this policy position). The Network should provide for a uniform spill notification and tracking system, a computerized data base of spill response resources (including equipment) and a single, centralized telephone number with 24 hour response capability. Toward this end, the capability of the Regional Response Team and other existing institutional arrangements should be carefully evaluated and improved or altered where necessary.

c) Federal, state and provincial legislatures should support the funding levels needed to ensure effective spill response capabilities at all appropriate levels of government.

3) U.S. Federal Role in Great Lakes Spill Planning/Response Capability

The Task Force finds that:

a) The Great Lakes, officially recognized in federal law as the nation's "fourth seacoast", warrant a level of federal support, assistance and protection which reflects their importance to the nation's environment, human health and quality of life.

b) Federal prevention and response capabilities for Great Lakes oil and hazardous materials spills are presently inadequate, thereby increasing the Lakes' vulnerability to the impacts of a spill incident.

c) As the world's greatest freshwater resource, and one that is intensively used and relied upon by tens of millions of residents, the Great Lakes require a strong federal presence and capability for spill planning, prevention and response.

To this end, the Task Force recommends that:

a) At lease one federally supported spill response center be established within the Great Lakes Basin.

b) Federal, national and regional contingency plans should be reviewed and revised, as needed, to ensure that the unique requirements of the Great Lakes system are fully taken into consideration by these plans.

c) Programs and funding levels for the U.S. Coast Guard, U.S. EPA and other agencies, as appropriate, should be established to permit full implementation of existing regulatory, enforcement, inspection and monitoring capabilities. For example, the U.S. EPA Spill Prevention Containment and Countermeasure (SPCC) inspection program should be funded at a level to permit it to accomplish its mandate.

d) The Great Lakes Commission should call upon members of the Great Lakes Congressional Delegation to request a General Accounting Office (GAO) study of spill prevention and response capabilities on the Great Lakes, with a special focus on U.S. Coast Guard and U.S. EPA capabilities and funding/program needs.

4) Data Collection and Inventory Needs

The Task Force finds that:

a) An effective regional program to anticipate, respond to and prevent oil and hazardous material spills is dependent upon an adequate base of relevant data, including inventories of spill incidents and inventories of staffing, equipment and related resources available to address them.

b) While information on the number and types of spills is available from the National

Response Center and individual state data bases, a single, readily accessible and up-to-date inventory for utilization by all Great Lakes jurisdictions currently does not exist.

c) A large number of data bases, with Title III (S.A.R.A.) principal among them, can be accessed for storage data. Like the spills inventory, however, no single source of data is in common use, nor does any appear to provide the basic information needed to support regional spill response and prevention initiatives.

d) An array of emergency response plans and resources exist from the local to binational level as well as in the private maritime sector. An inventory of emergency response resources (i.e., plans, personnel, equipment) within the Great Lakes Basin is needed.

To this end, the Task Force recommends that:

a) The Great Lakes Commission, in cooperation with the Council of Great Lakes Governors and the Task Force on Emergency Preparedness, should undertake a thorough review and evaluation of sources of spill information, compile an inventory, and recommend a preferred spills inventory source (existing or proposed) for common use by Great Lakes jurisdictions.

b) The above organizations should undertake a similar inventory and evaluation of sources of transport and storage data, also recommending a preferred source (or a set of sources) for regional use.

c) The above organizations should prepare an inventory of emergency response resources within the Great Lakes Basin.

Before initiating these activities, the Commission and Council should explore opportunities at the federal level (e.g., U.S. EPA, U.S. Coast Guard) for the preparation and maintenance of such inventories with the advice and assistance of the Great Lakes states and provinces.

5) Research, Technology and Education Needs

The Task Force finds that:

a) New technologies in oil and hazardous material spill clean-up are required to ensure an adequate response to future spill incidents.

b) Numerous governmental agencies, private organizations and academic institutes presently conduct research that can contribute to advancements in planning for, responding to and preventing spills. However, their collective capabilities are not well documented, nor are their individual activities conducted at a regional level.

c) Many Great Lakes communities and local levels of government responsible for emergency preparedness are not fully aware of available technologies, or of the response capabilities for Great Lakes spills.

To this end, the Task Force recommends that:

a) The federal governments, with the advice and assistance of the Great Lakes states and provinces, take a leadership role in promoting and funding the development of new technologies for spill response, as well as basic research that can help assess and minimize the environmental, human health and economic damages associated with a spill event. Special attention should be given to technologies to address under-ice and water soluble toxic spills. Means to minimize the use and handling of toxics in situations that pose potential spill threats should also be considered.

b) The U.S. and Canadian Coast Guards, in cooperation with relevant federal, state and provincial environmental agencies, prepare and make available an inventory of public and private sector resources involved in research and spill technology development.

c) Educational materials and workshops on clean-up technology and response capabilities should be developed and delivered (as resources permit) to local governments by appropriate educational institutions such as state Sea Grant programs.

6) Vessel Safety and Great Lakes Spill Planning/Response Capability

The Task Force finds that:

a) Ensuring the responsible operation and proper maintenance of vessels transporting oil and hazardous materials on the Great Lakes is a primary preventative strategy.

b) Human error has been a factor in both water and land-based spills; every effort must be made to minimize such occurrences.

c) Properly outfitted with spill control and containment equipment, shoreside loading facilities and vessels transiting the Great Lakes can provide an effective "first line of defense" in the event of a spill.

To this end, the Task Force recommends that:

a) The Great Lakes Commission should call for a careful evaluation of current and proposed pilotage regulations in the U.S. and Canada as they impact upon the handling and transport of oil and hazardous materials. Relaxation of regulations that may compromise the safety of vessel transits and increase the likelihood of spill incidents should be vigorously opposed.

b) The newly formed Petroleum Industry Response Organization should commit to locating at least one of its regional response centers in the Great Lakes region to provide Great Lakes-specific prevention, containment, clean-up and research and development services.

c) The two federal governments, acting through their respective Coast Guards, as appropriate, should review and make recommendations in the areas of construction standards for vessels transporting oil and hazardous materials (e.g., double bottoms); the need for shipboard oil spill response equipment; sources and means to reduce human error factors in spill incidents (e.g.,training); and programs for effective drug and alcohol testing and treatment.

7) Implementation Strategy and Timeline

The Task Force recommends that:

a) This policy statement should be presented, following Commission endorsement, to the Council of Great Lakes Governors for its consideration and action.

b) The Great Lakes Commission, within 60 days of endorsing this statement, should present in detail its findings and recommendations to the appropriate state, provincial and federal agencies, legislatures and maritime interests. Follow-up activity should proceed as needed for individual recommendations.

c) The Great Lakes Commission, in cooperation with the Council of Great Lakes Governors and the Task Force on Emergency Preparedness, should initiate a survey to produce inventories of sources of spill information; transport and storage data; and spill response resources. It should be designed and administered within 60 days of Commission endorsement of this statement. In addition, other elements of the workplan to implement these recommendations should be finalized within 60 days.

d) The Task Force on Emergency Preparedness should continue to meet, as needed, to provide assistance and oversight in implementation of recommendations. A status report should be prepared for presentation at the 1990 Semi-Annual Meeting of the Great Lakes Commission. At that time, additional policy positions that may emerge from continuing deliberations should be presented for approval.

Statement of the
American Petroleum Institute

Submitted to the
Senate Subcommittee on Oversight of Government Management
Senate Committee on Governmental Affairs

September 6, 1989

The American Petroleum Institute welcomes the opportunity to provide information on the industry's oil spill response and cleanup plan and to respond specifically to questions raised by Chairman Levin about Great Lakes oil spills.

At the heart of the industry's new program is the Petroleum Industry Response Organization (PIRO), to be funded by the industry at a cost of $70 million to $100 million in the first year and $30 million to $35 million annually thereafter. PIRO will create and oversee a nationwide network of regional response centers, each staffed and equipped to respond to a spill of at least 200,000 barrels of oil. These centers could join forces in a tiered response to battle much larger spills if needed. The industry recommends that the Secretary of Transportation be given authority to manage all major oil spills and that PIRO's resources be made available to the Secretary in the event of a spill. Regional centers will be provisionally located in the New York tristate area; Norfolk, Virginia; New Orleans, Louisiana; Long Beach, California; and Seattle, Washington. In addition, more than 20 staging areas are being identified for storing equipment that can be rapidly deployed to oil spills.

The petroleum industry understands the concern that some have raised about preventing and responding to oil spills on the Great

Lakes. Preparedness for Great Lakes oil spills will be a high priority for PIRO.

The API task force that established provisional locations for PIRO regional response centers selected each center to serve a larger area. Under the plan, PIRO should have an effective mechanism for responding to major tanker spills on the Great Lakes. Under the tiered response system envisioned by PIRO, the center in New York would respond to a catastrophic or other significant oil spill on the Great Lakes. Equipment from the New York center could be rapidly airlifted to any Great Lakes port.

As mentioned earlier, each response center will be equipped and staffed to deal with a spill of about 200,000 barrels of oil, but should a Great Lakes spill require more equipment than the New York center could provide, four other regional response centers could also provide help.

In addition to expanding its response capability, the industry recognizes that the problems of containing and recovering oil at sea and in cleaning it up once it reaches shore point to the need for more research to develop better oil spill technology, which is an important part of the industry's overall program.

PIRO will sponsor studies ranging from the purely scientific -- such as examining the chemistry and biological effects of oil on the environment -- to practical applications such as more effective cleanup of shorelines.

This research will cover a broad spectrum of issues that apply to spills throughout U.S. waters, including spills on the Great Lakes. For example, the API Task Force on Oil Spills recommended that high priority be given to identifying the public health and welfare issues that arise when people drink water, eat food or breathe air that contains hydrocarbons from an oil spill. Such studies will develop guidelines for community protection that can be used in oil spill contingency plans and in responding to a spill. Since the Great Lakes constitute an important source of drinking water, this research would be particularly useful to the region.

Keeping in mind that research results often point in new directions from the original path, the petroleum industry has targeted several other areas of inquiry which could help to minimize oil spill damage from tanker accidents -- whether they occur on the Great Lakes or elsewhere in U.S. waters:

Preventing loss from ships. This is a logical method for keeping oil losses and spill size to a minimum, but deploying equipment or chemicals from a tanker -- particularly in rough seas or at night -- poses serious safety hazards to the crew. The industry proposes research to seek shipboard containment methods that can be safely executed.

On-water oil recovery and treatment. More research is needed in recovering and treating oil after it begins to spread but before it reaches shore. Dispersants can help oil to biodegrade in water without themselves harming the environment; the industry will conduct further toxicity studies on the sublethal effects of dispersants on microscopic and larval life stages. Booms and skimmers also need to be made less vulnerable to high seas, strong currents, ice and natural growth.

Preventing and reducing shoreline impact. Shoreline oil causes the most environmental damage and is hardest to clean up. Mechanical or absorbent boom research is needed, as is further study of chemical treatments to remove oil-in-water emulsions -- "mousse" -- and to prevent oil from coating the shore. "Mop-up" techniques, water washing and steam cleaning also need to be advanced. Oil-eating microbes that accelerate natural biodegradation have already shown promise in treating refinery wastewater and in field tests on the Alaska spill. The industry plans to devote substantial funding to such bioremediation techniques.

Fate and effects of oil in the environment. We need to find out more about the physical, chemical and biological changes that oil and other hydrocarbons undergo when released into the environment. What happens to oil when its light ends evaporate is important, because evaporation removes 30 to 50 percent of a spill. How water-in-oil emulsions -- or "mousse" -- are formed and behave also is important. Such research will help to determine oil's varying health and environmental impacts and will suggest better ways to clean up spills and limit those impacts.

Reducing spills' impact on wildlife. Whenever oil is spilled, it has the potential to affect wildlife, especially birds and mammals such as sea otters and seals. The industry is proposing research on deterring or repelling wildlife from spills, developing better methods for capture, handling and cleaning of wildlife, and working with government to improve methods used to figure wildlife and environmental damage assessment.

Although the petroleum industry will support this research program at an estimated cost of $30 million to $35 million over five years, it will be a joint effort involving work by researchers from industry, government, academia and other organizations.

This budget will augment individual company research efforts and collective efforts that the industry has pursued through API over the years. API will also fund half of a $6 million oil spill research project it is conducting with the U.S. Department of the Interior.

The American Petroleum Institute has not at this time consulted with industry groups in Canada regarding Great Lakes spill response centers and oil spill research. However, many API members conduct extensive petroleum operations in Canada and stay in close communication with the Canadian petroleum industry. Should the need arise for joint planning with Canada, the avenues for discussion are certainly open.

The petroleum industry knows that improvement is needed in preventing, responding to and cleaning up oil spills. The industry program briefly described above represents a long-term commitment to do all of these things better, both on the Great Lakes and wherever tankers operate in U.S. waters. We know that close cooperation between the industry and the federal government will be essential to the plan's success, and we look forward to working with Congress to implement it.

PIRO IMPLEMENTATION, INC.
1220 L Street, N.W.
Suite 912
Washington, D.C. 20005

(202) 682-8317

John D. Costello
President

October 20, 1989

The Honorable
Carl Levin
Chairman, Subcommittee on
Oversight of Government Management
United States Senate
Washington, D.C. 20515

Dear Senator Levin:

Your letter of October 17, 1989 asked my views on the value of reactivating the Oil and Hazardous Materials Simulated Environmental Test Tank (OHMSETT) for oil spill research. In my opinion OHMESTT is an extremely valuable national resource. If dismantled it would represent a substantial impediment to effective oil spill research, development, test and evaluation.

OHMSETT is unique. I know of no other research facility in our nation which approaches its capabilities. It has been used for a wide range of hardware tests, systems analyses, combustion studies, etc. At a time when industry and federal agencies are making substantial new commitments to oil spill R & D it would seem inappropriate to impede these efforts by having a singular research tool eliminated.

Sincerely,

Costello

U.S. Department
of Transportation
**United States
Coast Guard**

Commandant
United States Coast Guard

Washington, D.C. 20593-0001
Staff Symbol G-CC/104
Phone 366-4280

5730

OCT 27 1989

The Honorable Carl Levin
Chairman, Subcommittee on Oversight of
Government Management
Committee on Governmental Affairs
United States Senate
Washington, DC 20510-6250

Dear Senator Levin:

The attached Questions and Answers for the Record of the Senate Committee on Governmental Affairs, Subcommittee on Oversight of Government Management are provided pursuant to the hearing on 6 September 1989, concerning oil/hazardous materials spills on the Great Lakes, submitted as per your request. All responses have been reviewed and approved, as required by the Department of Transportation and the Office of Management and Budget.

Please do not hesitate to call if I can provide further assistance.

Sincerely,

Thomas J. Schaeffer
Captain, U. S. Coast Guard
Chief, Congressional Affairs Staff
By direction of the Commandant

Enclosure: (1) Qs and As for Senator Carl Levin, 1-7

Copy: (1) Mary B. Gerwin, Minority Staff

RSGA.LEVIN.MER.1
28 SEP 89

QUESTIONS SUBMITTED BY SENATOR LEVIN
COMMITTEE ON GOVERNMENTAL AFFAIRS

SENATOR LEVIN: Coast Guard data indicates that the Great Lakes experienced 492 spills in 1988, 384 spills in 1987, and 401 spills in 1986. What are the comparable spill figures in these three years for the United States Atlantic, Gulf, Pacific and Alaskan coasts? Also, please provide the remaining spill data requested in the Subcommittee's letter of August 4, 1989.

ANSWER: The following figures reflect oil spills that occurred in United States coastal areas:

	1986	1987	1988
Atlantic	1,234	3,362	3,960
Gulf	1,326	994	1,248
Pacific	977	1,212	1,416
Alaskan	296	302	452

The remaining spill data (information provided by the Canadian Coast Guard) requested in the committee's letter of August 4, 1989 was forwarded to the Committee on September 13, 1989.

LEVIN.M/CBU-2
29 SEP 89

QUESTIONS SUBMITTED BY SENATOR LEVIN
COMMITTEE ON GOVERNMENTAL AFFAIRS

SENATOR LEVIN: What was the Coast Guard's FY90 budget request for Ninth District Marine Safety and Environmental Protection programs? What was its FY 90 request for funds to conduct spill response exercise in the Ninth District? How do these figures compare to the final budget figures in the FY89 budget?

ANSWER: The President FY90 budget request for the Ninth District includes approximately $845,000 for Marine Safety and $1,025,000 for the Marine Environmental Protection program. These funds, which are from the Operating Expenses Appropriation (OE), are for annual operating and maintenance costs; they do not include other costs for which program data at the District level cannot be derived, such as OE costs for personnel and formal training, and expenses which fall under other appropriations. The Coast Guard also requested $34,571 to conduct spill response exercises in the Ninth District in FY90. These exercises are paid for by a fund established by the Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA), as amended, which addresses hazardous waste spills other than oil. The CERCLA fund is included in the budget of the Environmental Protection Agency, the fund administrator.

In FY89, the operating and maintenance costs in the Ninth District Marine Safety and Marine Environmental Protection programs were approximately $860,000 and $960,000, respectively. The total expenditure for response exercise training in the Great Lakes area during FY89 was $24,200. Of that amount, $7,200 was spent to conduct spill response exercises in a unit-sponsored exercise within the Ninth District. The Region V Regional Response Team held a $17,000 exercise in Milwaukee, sponsored by the Coast Guard Marine Safety School.

RSGA.LEVIN.MER.3
28 SEP 89

QUESTIONS SUBMITTED BY SENATOR LEVIN
COMMITTEE ON GOVERNMENTAL AFFAIRS

SENATOR LEVIN: At the hearing, several witnesses described ongoing efforts to compile an inventory of spill-fighting equipment in the Great Lakes; David Usher of the Spill Control Association of America also offered to provide detailed information about industry equipment. Please report to the Subcommittee by October 23, 1989, on the status of these efforts.

ANSWER: The nine Coast Guard Captains of the Port who are responsible for oil spill contingency planning for the Great Lakes are currently reviewing and updating all local contingency plans for that region. Each plan, which pertains to a particular sector within the Great Lakes, includes an inventory of equipment, both government and private, which would be available to combat an oil spill. The review and updating is scheduled to be completed by the end of November 1989.

Mr. Usher of the Spill Control Association of America has advised us that his inventory of industry equipment will be available in late October 1989. We anticipate that Mr. Usher's inventory will be incorporated into the contingency plan review previously noted.

RSGA.LEVIN.MER.4
28 SEP 89

QUESTIONS SUBMITTED BY SENATOR LEVIN
COMMITTEE ON GOVERNMENTAL AFFAIRS

SENATOR LEVIN: At the hearing, the Coast Guard offered to act as Government-wide coordinator for federal programs conducting spill response and prevention research. Does the Coast Guard agree that federal spill research programs must include Great Lakes concerns such as improved drinking water protections and better spill controls for fast-flowing rivers like the connecting channels?

ANSWER: The Coast Guard agrees that in areas where there are drinking water concerns, including the Great Lakes area, that improved drinking water protection and better spill controls for fast-flowing rivers should be included in any federal spill research program.

RSGA.LEVIN.MVP.5
28 SEP 89

QUESTIONS SUBMITTED BY SENATOR LEVIN
SENATE COMMITTEE ON GOVERNMENTAL AFFAIRS

SENATOR LEVIN: The Coast Guard testified that it is currently negotiating with the Canadian Coast Guard to strengthen requirements for the Canadian "B certificate." What is the status of those negotiations, what reforms have been promised, and when are they likely to be implemented?

ANSWER: U.S. Coast Guard officials met with Canadian officials on March 29, 1989, to discuss the matter of possibly strengthening the requirements necessary to obtain a Canadian "B Certificate".

The following options, addressing the expressed concerns, were offered by various participants and discussed in general terms:

a. A requirement that a ship's "B Certificate" holder be on duty in specific circumstances/areas directing the navigation of the vessel;

b. Provisions which would invalidate a "B Certificate" in ports unless the holder had made a specific number of trips to that port;

c. A method of protecting ports without the need to designate those waters;

d. More effective methods of assessing applicant's abilities in the use of the English language in navigational conditions;

e. More detailed instructions to examiners regarding the conduct and content of the examinations.

We agreed with the Canadians to consider the above-listed options in the context of each nation's laws and practices, and to meet again. The next meeting will probably be held in October/November 1989. However, the passage of H.R. 1465, in its present form, would eliminate the use of "B Certificates" on U.S. waters, therefore rendering additional meetings moot.

RSGA.LEVIN.MVP.6
28 SEP 89

QUESTIONS SUBMITTED BY SENATOR LEVIN
SENATE COMMITTEE ON GOVERNMENTAL AFFAIRS

SENATOR LEVIN: Please describe the criteria used by the U.S. Coast Guard to waive pilotage requirements for vessels intending to navigate on designated waters of the Great Lakes. If these criteria appear in any official regulations or other rules, please provide a copy. If they do not, please explain why these criteria have not been formalized.

ANSWER: When a U.S. or Canadian registered pilot is not available, a vessel may request a waiver to proceed without a pilot. The criteria and procedures are contained in the Great Lakes Pilotage Regulations (46 CFR 401.510) (photocopy enclosed).

Upon receiving a request for waiver, information requested by the Coast Guard would include the name and flag of the vessel, its destination, its cargo and expected weather conditions.

The following table shows the number of pilotage waivers requested and issued for the past four years. As a matter of policy, pilotage waivers are issued for undesignated waters (lakes) only, and not for designated waters (rivers).

	1988		1987		1986		1985	
	Req.	Iss.	Req.	Iss.	Req.	Iss.	Req.	Iss.
Lake Ontario	10	2	13	2	48	11	1	0
Lake Erie	0	0	0	0	0	0	0	0
Lakes H, M,S	1	1	0	0	0	0	0	0

twenty (20) days, in which to file with the Director and the appellant any data or arguments desired to be submitted in further defense of the disputed rates and charges. I11(e) The Administration shall consider all relevant matter presented and issue an advisory opinion which shall be accompanied by an express recital that all relevant material received has been considered. The advisory opinion shall set forth the rates and charges in dispute, a discussion of the facts and relevant material considered, and a statement of opinion.

(f) When it is found that the disputed rates and charges, in the opinion of the Director, are charges prohibited by § 401.430, the respondent shall have a reasonable time, but not more than thirty (30) days in which to refund moneys, adjust invoices, and otherwise conform to the advisory opinion.

(g) Failure or refusal to comply with the advisory opinion within the time allowed may form a basis for a determination that there is a violation of the Great Lakes Pilotage Regulations subject to the provisions of § 401.500.

[29 FR 10467, July 28, 1964, as amended at 32 FR 14221, Oct. 13, 1967]

§ 401.440 Advance payment of charges.

Subject to the approval of the Director, a United States or Canadian Registered Pilot performing pilotage services in accordance with the rates and charges set forth in this subpart may require advance payment of such rates or charges or a suitable bond securing payment.

[29 FR 10467, July 28, 1964, as amended at 32 FR 14221, Oct. 13, 1967]

§ 401.450 Pilot change points.

A Registered Pilot's assignment is completed when the vessel to which he is assigned completes its arrival at or, in the case of a through trip, passes any of the following places:

(a) Snell Lock;
(b) Cape Vincent;
(c) Port Weller;
(d) Lock No. 7, Welland Canal;
(e) Detroit/Windsor, other than assignments originating or terminating at a point on the Detroit River;
(f) Port Huron/Sarnia;
(g) Detour;
(h) Gros Cap;
(i) Chicago with respect to assignments originating at Detour or Port Huron/Sarnia; and
(j) Duluth/Superior and Fort William/Port Arthur with respect to assignments originating at Gros Cap.

[CGFR 68-57, 33 FR 6479, Apr. 27, 1968]

§ 401.451 Pilot rest periods.

(a) Except as provided in paragraph (b) of this section:

(1) Each Registered Pilot upon completing an assignment at a change point designated in § 401.450, and

(2) Each Registered Pilot upon completing a series of assignments totaling more than 10 hours with no more than 2 hours rest between assignments, shall not perform pilotage services for at least 10 hours.

(b) In the event of an emergency or other compelling circumstances a pilotage pool may assign a Registered Pilot for service before his 10-hour rest period required under paragraph (a) of this section is completed. Pilotage pools shall advise the Director of each assignment made under this paragraph.

[CGFR 68-57, 33 FR 6479, Apr. 27, 1968]

Subpart E—Penalties; Operations Without Registered Pilots

§ 401.500 Penalties for violations.

Any person who violates any provision of this part shall be liable to the United States in a civil penalty not exceeding $500 for each violation. Such penalty may be remitted or mitigated, upon application therefor, by the Commandant upon such terms as he, in his discretion, shall think proper.

[26 FR 953, Jan. 31, 1961, as amended at 32 FR 14221, Oct. 13, 1967]

§ 401.510 Operation without Registered Pilots.

(a) A vessel may be navigated in the U.S. waters of the Great Lakes without a United States or Canadian Registered Pilot when the vessel or its cargo is in distress or jeopardy.

(b) A vessel may be navigated in the U.S. waters of the Great Lakes without a United States or Canadian Registered Pilot when the Director, with the concurrence of the Commander, 9th Coast Guard District, notifies the master that a United States or Canadian Registered Pilot is not available.

(1) Notification to the master that a pilot is not available will be made by the Director through the appropriate pilotage pool, either orally or in writing as the circumstances admit, and shall not be deemed given until the notice is actually delivered to the vessel by the pilotage pool.

(2) The determination that a pilot is not available will be made on an individual basis and only when a vessel has given proper notice of its pilotage service requirements to the pilotage pool having dispatching jurisdiction at the time. The vessel has no obligation or responsibility with respect to such notification other than properly informing the pilotage pool of its pilotage requirements. However, the failure or delay by the pool in processing a pilotage service request, or refusal or delay by the Coast Guard in notifying the vessel that a pilot is not available, does not constitute constructive notice that a pilot is not available, and the vessel is not relieved by such failure or delay from compliance with the Great Lakes Pilotage Act of 1960.

(3) Upon receipt of proper notice of a vessel's pilotage requirements, the pilotage pool shall then determine from the tour de role the availability of a pilot to render the service required. If no pilot is reasonably expected to be available for service within 6 hours of the time the pilotage services are required by the vessel, the pilotage pool shall promptly inform the Director through the U.S. Coast Guard communications system in the manner as may be prescribed from time to time by the Commandant. The Director shall be informed of:

(i) Name and flag of the vessel;

(ii) Route of vessel for which a pilot is not available;

(iii) Time elapsing before a pilot is reasonably expected to become available;

(iv) Whether vessel has an "other officer" on board;

(v) Familiarity of master with route to be transited by the vessel;

(vi) Draft of vessel; and

(vii) Any circumstances of traffic or weather, or condition of the vessel or its cargo which would adversely affect the safety of the vessel in transiting without a pilot.

(4) When a pilot is expected to become available within 6 hours of the time his services are required, the vessel shall be informed that a pilot is available and the approximate time he will report on duty. However, should any unusual circumstance or condition exist which may justify notification that a pilot is not available in less than 6 hours, the pilotage pool shall inform the Director as in paragraph (b)(3) of this section, along with the circumstances involved. Every reasonable effort is to be made to prevent delay to the vessel consistent with the intent and purpose of the Great Lakes Pilotage Act of 1960.

(5) Any vessel which requires the services of a pilot and is navigated without a pilot or proceeds prior to receipt of a message that a pilot is not available pursuant to paragraph (b)(1) of this section shall be reported as in violation of section 7 of the Great Lakes Pilotage Act of 1960 by the pilotage pool to the local Coast Guard unit having jurisdiction. If the message is received after the vessel proceeds, such message shall not be delivered without concurrence of the Coast Guard officer to whom the violation was reported.

(6) U.S. pilotage pools informing the Director that a pilot is not available for a vessel shall also obtain notice that a pilot is not available from the appropriate Canadian Supervisor of Pilots for those portions of the route which are in Canadian waters in the manner prescribed by them. The notice for Canadian District No. 1 waters shall be obtained from the Supervisor of Pilots, Department of Transport, Cornwall, Ontario, and the notice for Canadian District No. 2 waters shall be obtained from the Supervisor of Pilots, Department of Transport, Port Weller, Ontario. Authority to issue notice for Canadian waters of District No. 3 has been granted to the Director by the Depart-

RSGA.LEVIN.MVP.7
28 SEP 89

QUESTIONS SUBMITTED BY SENATOR LEVIN
SENATE COMMITTEE ON GOVERNMENTAL AFFAIRS

SENATOR LEVIN: Please explain why the Straits of Mackinac are not designated for Great Lakes pilotage and describe any recent or planned Coast Guard proceedings which have considered or will consider this issue.

ANSWER: In the negotiations leading up to the passage of the Great Lakes Pilotage Act of 1960, it was determined that "designated waters" would include the rivers (and the ports in those rivers), and that "undesignated waters" would be the lakes (and the ports in those lakes). Straits were considered to be undesignated waters.

The Commander, Ninth Coast Guard District is currently studying the matter of whether the Straits of Mackinac should be designated. The study is expected to be completed by the end of this year.

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United States Senate
COMMITTEE ON
GOVERNMENTAL AFFAIRS
WASHINGTON, DC 20510-6250

September 14, 1989

The Honorable William K. Reilly, Administrator
Environmental Protection Agency
401 M Street, S.W.
Washington, D.C.

Dear Mr. Reilly:

On September 6, 1989, the Senate Subcommittee on Oversight of Government Management held a hearing on actions by federal agencies to prevent and respond to spills of oil and hazardous materials in the Great Lakes. We appreciate the cooperation and assistance of your agency in providing useful information and important testimony.

The hearing disclosed that the Great Lakes experience hundreds of oil spills each year. The data showed that, since 1986, the number of spills in U.S. waters has doubled while the number in Canadian waters has decreased by half. The data also indicated that about 85 per cent of Great Lakes spills involve oil; about 75 per cent are caused by land-based facilities under EPA's purview; and about 25 per cent are caused by vessels. The testimony confirmed that current spill response technology is largely ineffective and that spill prevention is essential to protection of the Great Lakes.

Testimony from a number of witnesses indicated that the most important spill prevention program in the Great Lakes is EPA's Spill Prevention, Control and Countermeasures (SPCC) Program which requires facilities that store oil in bulk to implement spill prevention plans. These facilities are responsible for most of the spills in the Great Lakes and for virtually all of the larger spills. Timothy Fields of EPA's Emergency Response Division testified that the SPCC Program is very effective, that SPCC inspections of facilities lead directly to a decrease in spills, and that it is "one of the most cost-effective programs that the EPA can administer" to stop spills into Great Lakes waters.

At the same time, Mr. Fields admitted that SPCC inspections have declined dramatically. Reports issued by an

EPA task force in May 1988 and by the General Accounting Office in February 1989 urged that SPCC inspections increase immediately from about 1,100 in 1987 and, through annual increases, reach a target of 6,500 per year. Instead, inspections have continued to drop, falling to 1,000 in 1988. Mr. Fields indicated that inspections would increase in 1991 but admitted that, for Region V, they still would be only about half of the number performed in 1986. He also described new regulations drafted in response to the 1988 and 1989 reports to strengthen the SPCC Program, but admitted that they were still in draft form.

Given the dramatic increase in Great Lakes spills in U.S. waters and the cost-effective nature of the SPCC Program, I urge your agency to take two steps: immediately increase SPCC inspections of facilities surrounding the Great Lakes, and take all steps necessary to finalize promptly the strengthening SPCC regulations. I understand that EPA plans to submit the proposed regulations in September to the Office of Management and Budget (OMB) for review and to publish them in the Federal Register in February. I urge your agency to keep to this schedule, and I have alerted OMB by letter, copy attached, to the importance of a prompt review of the regulations, once submitted.

Another topic discussed at the hearing is a recommendation by Professor Walter Lyon that EPA, through its Great Lakes National Program Office, establish a spill prevention program for the Great Lakes. This program could include such activities as identifying high-risk areas and facilities within the Great Lakes; evaluating spill prevention programs for various regional resources and activities including drinking water supplies, transportation systems and fixed facilities; reviewing federal and state inspection programs for bulk oil facilities; and improving or establishing needed spill prevention programs. Spill prevention is still our best and most cost-effective defense against the damage that such spills can cause, and I urge you to act on this proposal.

A third topic raised at the hearing was the importance of additional research into spill response and prevention technology. Mr. Fields indicated that EPA plans to revive its spill research program. This plan is a wise investment of federal dollars, given the opportunities for near-term, dramatic improvements in today's technology. When designing your research program, however, I urge EPA to include Great Lakes concerns. As the reservoir for 95 per cent of the United States' surface freshwater, the source for millions of Americans' drinking water, and an ecosystem which is more fragile than saltwater areas when subjected to spills, the Great Lakes deserve special attention in EPA's spill research program. Pressing needs include better protections for drinking water intakes and treatment plants, improved spill control technology for fast-flowing rivers like the connecting channels, and better spill prevention and inspection methods for bulk oil storage facilities.

A related research concern is the Oil and Hazardous Materials Simulated Environmental Test Tank (OHMSETT) which EPA used to administer but which it returned to the Navy in March 1989, just three weeks before the oil spill in Valdez, Alaska. The Department of Interior and the Coast Guard support reactivation of the OHMSETT facility to test new spill response technology; the Department of Interior testified, in fact, that this facility is unique in North America and "critical" to new research efforts. We were also told that this facility is currently inaccessible and that the Navy may be considering dismantling it. I have asked the Navy about this assertion in the enclosed letter; it seems that such an action would be a costly mistake. I urge EPA to join with the Department of Interior and the Coast Guard in pressing for the reactivation of this facility.

Thank you for your assistance in these important matters. If you or your staff have any questions about my concerns, please have your staff contact Elise Bean of the Subcommittee staff at 224-3682.

Sincerely,

Carl Levin

Carl Levin, Chairman
Subcommittee on Oversight of Government Management

CL:ejb
Enclosures

cc: Timothy Fields, Jr., EPA Environmental Response Division
Carol Finch, EPA Great Lakes National Program Office

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OCT 24 1989

THE ADMINISTRATOR

Honorable Carl Levin
Chairman, Subcommittee on
  Oversight of Government Management
Committee on Governmental Affairs
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

This is in response to your letter of September 14, 1989, in which you raised issues regarding programs of the U.S. Environmental Protection Agency (EPA) dealing with oil spills prevention, response and research, particularly as these issues relate to the Great Lakes region. These issues were discussed during testimony of Mr. Timothy Fields, Jr., Director of EPA's Emergency Response Division, before the Subcommittee on Oversight of Government Management on September 6, 1989. The principal issues you raised concerned the level of inspections EPA conducts in the Great Lakes region for compliance with the Oil Pollution Prevention regulation (40 CFR Part 112), the need for modifications to the regulation and EPA's schedule for proposing such modifications, the need for considering Great Lakes concerns in designing plans for oil spills research and the need for reactivation of the Oil and Hazardous Materials Simulated Environmental Test Tank (OHMSETT), a research facility that was recently decommissioned.

As Mr. Fields testified, the 16 year history of the Oil Pollution Prevention regulation demonstrates that it has been a successful approach to reducing the numbers and volumes of oil spills from facilities to which the regulation applies. The regulation requires that non-transportation related facilities that store oil in excess of certain quantities prepare and implement spill prevention, control and countermeasures (SPCC) plans, and contains requirements for such plans. A large measure of the success of this program has been the degree to which we have been able to work with members of the regulated community to encourage voluntary compliance with the goals of the regulation.

We have found, as was discussed at the hearing, that when these efforts at encouraging voluntary compliance are supplemented by a moderate number of inspections for compliance with the regulation, compliance rates increase and oil spills decline. This program, however, has never been based exclusively upon relying on such inspections for insuring compliance. We estimate that approximately 420,000 facilities are subject to this regulation. During the years shortly after this program began, we conducted approximately 3,500 inspections annually. Currently, we conduct approximately 1,000 inspections annually. The Oil Spill Prevention, Control and Countermeasures Program Task Force (Task Force), which Mr. Fields chaired and to which you referred in your letter, established a goal of returning the annual level of inspections to approximately one percent of the industry facilities. This would be accomplished by a combination of increases in inspections conducted by EPA and efforts to encourage States and other government entities to implement similar programs. Eleven states have oil spill prevention programs similar to the SPCC program. During fiscal year 1990, we plan to work with the National Conference of State Legislatures to develop a plan to encourage more States to implement similar programs.

The Task Force also made specific recommendations concerning ways in which EPA could strengthen the existing regulation. As Mr. Fields described, EPA is pursuing these regulatory modifications in two phases. We completed the "workgroup closure" process for the phase one modifications to the regulation on August 28, 1989. The next step in EPA's regulatory review process, known as "Red Border Review," permits senior managers at the Assistant Administrator and Regional Administrator level to review and comment on regulatory packages. We began this Red Border Review process October 11. After Red Border Review and after consideration of issues raised during that review, the regulatory package would then be altered, if necessary, and submitted to the Office of Management and Budget (OMB) for its review. Under our current schedule, this would occur in December.

The Task Force also made a series of recommendations concerning ways in which EPA should more effectively conduct the existing program for facility inspections and enforcement of this regulation. These recommendations include obtaining better information than we now have regarding the characteristics of facilities subject to the regulation and the waters which such facilities could affect in the event of a spill, establishing more focused criteria for selecting facilities for inspection based on such information, and establishing clearer and more uniform enforcement and penalty policies. These goals, which are also addressed in the five year implementation plan contained in the Task Force report, are similar to the ones you suggested in your letter on the SPCC program as they relate to the Great Lakes. We have not, however, recommended that these programs be managed by the Great Lakes National Program Office. The function of that Office should continue to be to insure that program offices, in each relevant EPA Region, consider broader Great Lakes concerns in their implementation of EPA programs.

You also urged EPA to consider specific Great Lakes concerns in designing our research and development programs that relate to oil spill response and prevention technology. As Mr. Fields, the representative of the U.S. Department of the Interior (DOI) and others testified, however, the technologies that would be used to respond to a major oil spill or that would be expected of a facility to prevent oil discharges into the Great Lakes are generally the same technologies that would be used in other marine or inland environments. Unfortunately, these technologies suffer from the same shortcomings that I and many others have raised. For the reasons you point out, however, the objectives that we would expect to accomplish, using the available technology, in an oil spill response or a preparedness plan for the Great Lakes, would differ from the objectives in other environments. Of course, as our research plans develop, if certain technologies appear to hold special promise for Great Lakes oil spills response and prevention, we will consider them in implementing our plans and in coordinating research efforts and priorities with other government agencies and the private sector.

Finally, you raised the issue of whether EPA supports the reactivation of the OHMSETT research facility. For the reasons Mr. Fields described at the hearing, the OHMSETT facility was closed and control of the property was returned to the Department of Defense. The OHMSETT facility is uniquely designed to perform certain simulated open water tests. As we understand it, the Navy has been discussing a plan to reactivate OHMSETT under private management and with oversight from DOI's Minerals Management Service (MMS). We support this arrangement and, for our part, we have agreed to return certain facility equipment still in our possession and to provide technical consultation. The arrangement envisioned by MMS would make the facility available not only to EPA but to other Federal and State agencies as well as to private researchers on a cost reimbursable basis.

Thank you for your interest in EPA's oil spills prevention, response, and research programs. We look forward to working with you and the Subcommittee on Oversight of Government Management as we implement these important programs.

Sincerely yours,

William K. Reilly

William K. Reilly

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United States Senate
COMMITTEE ON
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WASHINGTON, DC 20510-6250

September 12, 1989

The Honorable Richard G. Darman
Director
Office of Management and Budget
Old Executive Office Building
Washington, D.C. 20503

Dear Mr. Darman:

I am writing to urge your agency to conduct a prompt review of proposed regulations by the Environmental Protection Agency (EPA) to strengthen its Spill Prevention, Control and Countermeasures (SPCC) Program.

The SPCC Program, which is the most important spill prevention effort in the Great Lakes region, requires facilities that store oil in bulk to implement spill prevention plans. This program underwent a major review after an oil tank in Pennsylvania burst and spilled about one million gallons of oil into the Monongahela and Ohio Rivers. Reports issued in May 1988 and February 1989 found the program to be highly effective when fully enforced and recommended several reforms to improve it, including stronger regulations and more frequent inspections.

At a hearing held on September 6, 1989, by the Senate Subcommittee on Oversight of Government Management, on oil spills in the Great Lakes, EPA testified that its SPCC Program is "one of the most cost-effective programs that the EPA can administer" to prevent spills into U.S. waters. EPA also described the regulations it has prepared to strengthen the program and promised to submit them to OMB during September with the goal of publishing them in the Federal Register by February 1990.

Improving the SPCC Program is critical to preventing Great Lakes spills, and I urge your agency to process the proposed regulations as quickly as possible. Thank you for your assistance. If you or your staff have any questions, please have your staff contact Elise Bean of the Subcommittee staff at 224-3682.

Sincerely,

Carl Levin

Carl Levin, Chairman
Subcommittee on Oversight of Government Management

CL:ejb

cc: Timothy Fields, Jr., EPA Emergency Response Division

Jay Plager, Office of Information and Regulatory Affairs

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

September 25, 1989

Honorable Carl Levin
Subcommittee on Oversight
  of Government Management
Committee on Governmental Affairs
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

Thank you for your letter of September 12th regarding the Environmental Protection Agency's (EPA's) draft regulations modifying the Spill Prevention, Control and Countermeasures (SPCC) Program. This rule will implement recommendations made by an interagency task force concerning the prevention and control of oil spills.

This revision in the SPCC Program represents an important step in preventing releases of oil into the nation's waterways and mitigating the consequences of such releases when they occur. While this rule has not yet been submitted to OMB for review, I can assure you that it will receive prompt and careful attention.

Sincerely,

Thomas Scully

Thomas G. Scully
Associate Director
  for Legislative Affairs

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United States Senate
COMMITTEE ON
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WASHINGTON, DC 20510-6250

September 13, 1989

Mr. William F. O'Keefe
Chief Operating Officer
American Petroleum Institute
1220 L Street, N.W.
Washington, D.C. 20005

Dear Mr. O'Keefe:

Thank you for providing API's written statement for the hearing held September 6, 1989, before the Senate Subcommittee on Oversight of Government Management, on responding to and preventing spills of oil and hazardous materials in the Great Lakes. Your statement was useful and informative.

During the hearing, however, the Subcommittee received testimony indicating that API's proposed regional spill response center in New York would be unable to handle spills throughout the Great Lakes region. The Director of Michigan's Department of Natural Resources stated that the New York center is "simply too far from the Great Lakes to provide the necessary rapid response capability necessary to control and contain any serious spill." The Executive Deputy Commissioner of New York's Department of Environmental Conservation said that "at least one more response center is needed...preferably two...one located in the upper Lakes and one located in the lower Lakes." The Director of New York's Spill Response Program testified that transporting spill equipment from New York to Lake Superior could take 12 hours or longer and that greater speed is desirable. The Council of Great Lakes Governors provided a spill control strategy agreement which "urge[s] the establishment of at least one Great Lakes response center, in addition to those previously proposed."

This testimony indicates that a second response center, located inland on the Great Lakes, is important to improving our spill response capabilities, and I urge your serious consideration of this proposal. Since many Great Lakes

Mr. William F. O'Keefe
September 13, 1989
Page Two

spills are in Canadian waters or from Canadian sources, it would be appropriate for Canadian industry to help support a second center, and I urge you to present them with this suggestion. Alternative measures, such as establishing staging areas with appropriate pre-positioned equipment in key Great Lakes areas, may also be worth exploring.

I would appreciate receiving API's written response to these matters by September 29, 1989. If you or your staff have any questions, please contact Elise Bean of the Subcommittee staff at 224-3682. Thank you for your assistance.

Sincerely,

Carl Levin, Chairman
Subcommittee on Oversight of Government Management

CL:ejb

PIRO IMPLEMENTATION, INC.
1220 L Street, N.W.
Suite 717
Washington, D.C. 20005

(202) 682-8580

John D. Costello
President

September 22, 1989

The Honorable Carl Levin
Chairman, Subcommittee on
Oversight of Government Management
United States Senate
Washington, D.C. 20515

Dear Senator Levin:

Please let me introduce myself. I am the President of PIRO Implementation, Inc. a company formed to bring into existence the ideas and concepts announced by the American Petroleum Institute in their Task Force Report in June of this year. Because we are the precursor of PIRO, Bill O'Keefe of API asked me to respond to your letter of September 13, 1989.

Please understand that API's Task Force Report was not a final judgement on many aspects of the capabilities PIRO will eventually have. The report took a macro view of the catastrophic oil spill problem so that API and, indeed the public too, could begin the process of understanding the requirements of a national response organization. The report states "...The suggested locations for PIRO regional centers and prestaging areas for equipment are preliminary. The Petroleum Industry Response Organization will make more detailed evaluations and adjust the sites as appropriate..." We are just beginning to do just that.

As you know, Congress is debating many strategic issues which impact on the form and capabilities PIRO must have. Accordingly, it is impossible to come to specific siting decisions at this time, but I very much want to discuss the matter with you and/or your staff so that our analysis can be complete. To this end I am scheduled to meet with Elise Bean of your staff on Wednesday, September 27, 1989.

Sincerely,

John D Costello

/gtk

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United States Senate
COMMITTEE ON
GOVERNMENTAL AFFAIRS
WASHINGTON, DC 20510-6250

September 12, 1989

Mr. David Usher
Member, Board of Directors
Spill Control Association of America
Suite 1900, 400 Renaissance Center
Detroit, Michigan 48243-1075

Dear Mr. Usher:

Thank you for testifying on September 6, 1989, before the Subcommittee on Oversight of Government Management on actions by federal agencies to respond to and prevent spills of oil and hazardous materials in the Great Lakes. Your testimony was informative and useful.

During the hearing, you indicated that your organization would be willing to conduct a detailed inventory of private spill-fighting equipment in the Great Lakes, including listing available items and their age, condition and location. You also agreed to provide an estimate of the percentage of this equipment that would be available for use during a major spill. You indicated that you would be willing to make this information available to the Subcommittee, Coast Guard, EPA and states surrounding the Great Lakes. It could then be used to help determine, for example, what additional equipment is needed to respond to a major spill in the Great Lakes and where that equipment should be located.

I want to thank you for your willingness to testify and to provide this critical information. I would hope that the inventory could be completed by October 15, 1989, and look forward to receiving a copy at that time. If there are problems with completing the inventory by this date, please alert Elise Bean of the Subcommittee staff at (202) 224-3682. Thanks again for your help.

Sincerely,

Carl Levin

Carl Levin, Chairman
Subcommittee on Oversight of Government Management

CL:ejb

cc: Rear Admiral Richard A. Appelbaum, U.S. Coast Guard

Timothy Fields, Jr., Environmental Protection Agency

MARINE POLLUTION CONTROL
8631 WEST JEFFERSON • DETROIT, MICHIGAN 48209 • (313) 849-2333 • TELEX 23-0387

October 12, 1989

Senator Carl Levin
c/o Ms. Elise Bean
442 Hart Senate Office Building
Washington, DC 20510

RE: Great Lakes Spill Response List

Dear Ms. Bean:

At the request of Mr. David Usher, I have compiled the enclosed list of Spill Response Firms located in the Great Lakes Area. Firm names were obtained through the "EI Industrial and Hazardous Waste Management Firms" index, and through the "International Oil Spill Control Directory, 9th Edition".

Each firm was contacted to obtain the listed information, and each company was asked to list the equipment they would have available in the event of a spill on the Great Lakes. The equipment listed could be mobilized quickly in the event of a spill.

Shelf-life of equipment and materials is not a factor to consider in the spill control industry. Equipment maintenance and upkeep is the factor to realize to insure efficiency during a spill clean up.

I hope this list can provide you with some insight as to the availability of spill response equipment in the Great Lakes Area. If you have any questions, please contact me.

Cordially,

Michael E Snyder

Michael E. Snyder
Proposal Manager

/ms

cc: D. Usher

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SPILL RESPONSE COMPANIES OF THE GREAT LAKES AREA

INDIANA

1. Correct Maintanance Corporation
   2000 Dombey Road
   Portage, IN 46368
   (219) 762-2167
   Mr. Sam Raich

   Vac-Trucks: 20 Personnel: 150
   Skimmers: 3 Saucer type
   Vessels: 6 work boats
   Oil Containment Boom: 1,000'/12" skirt
   Oil Sorbent Boom: 1,000'
   Sorbent Materials: 3,200 cubic feet (1 truck load)

2. Pollution Control Systems
   CO. Rd. 550 South, P.O. Box 17
   Laotto, IN 46763
   (219) 637-3137
   Mr. Mark Weaver

   Vac Trucks: 2 Personnel: 10
   Skimmers: -
   Vessels: 1 John Boat
   Oil Containment Boom: 300'/8" skirt
   Oil Sorbent Boom: 1,200'
   Sorbent Materials: 250 cubic feet

3. Spill Recovery of Indiana, Inc.
   P.O. Box 34337
   Indianapolis, IN 46234
   (317) 291-3972
   Mr. John Fetter

   Vac Trucks: 4 Personnel: 8
   Skimmers: 12 (Skim Pak, Manta-Ray, Duck-Bills)
   Vessels: 2 work boats
   Oil Containment Boom: 2,500'/8" skirt,
   Oil Sorbent Boom: 3,000'
   Sorbent Materials: 3,200 cubic feet

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ILLINOIS

4. American Waste Processing, Ltd.
P.O. Box 306
2010 W. Madison
Maywood, IL 60153
(312) 681-3999
Mr. Joe Strosnik

Vac Trucks: 5   Personnel: 25
Skimmers: -
Vessels: 1 John Boat
Oil Containment Boom: -
Oil Sorbent Boom: -
Sorbent Materials: -

5. Clean Harbors of Chicago
11800 South Stoney Island Ave.
Chicago, IL 60617
(312) 646-6202
Mr. Tony Pongonis

Vac Trucks: 10   Personnel: 100
Skimmers: 30
Vessels: 20 work boats
Oil Containment Boom: 10,000'/18" skirt, 1,000'/36" skirt
Oil Sorbent Boom: 10,000'
Sorbent Materials: 1,000 cubic feet

6. ESG Watts, Inc.
8400 77th Street West
Taylor ridge, IL 61284
(309) 798-2266

Vac Trucks: 5   Personnel: 10
Skimmers: 1
Vessels: 1
Oil Containment Boom: 100'/12" skirt
Oil Sorbent Boom: 100'
Sorbent Materials: 150 cubic feet

7. Fort Transfer Company
P.O. Box 457
225 S. Maple
Morton, IL 61550
(309) 263-2000
Mr. Dave Keyser

Vac Trucks: 12   Personnel: 12
Skimmers: -
Vessels: 1 John Boat
Oil Containment Boom: -
Oil Sorbent Boom: -
Sorbent Materials: -

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[illegible]

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8. Maecorp Incorporated
155 N. Wacker St.
Chicago, IL 60606
(312) 372-3300
Mr. Carl Yost

Vac Trucks: 2 Personnel: 20
Skimmers: -
Vessels: 2 Outboard
Oil Containment Boom: 500'/8" skirt boom
Oil Sorbent Boom: 800'
Sorbent Materials: 100 cubic feet

9. PDC Response, Inc.
113 N. Swords
Peoria, IL 61604
(309) 674-5176
Mr. Ron Aldorfer

Vac Trucks: - Personnel: 12
Skimmers: 3
Vessels: -
Oil Containment Boom: 70'/12" skirt
Oil Sorbent Boom: 500'
Sorbent Materials: 300 cubic feet

10. Petrochem Services, Inc.
P.O. Box 337
Lemont, IL 60439
(312) 739-1150
Mr. Dick Trisner

Vac Trucks: 15 Personnel: 20
Skimmers: -
Vessels: 1 john boat
Oil Containment Boom: 1,000'/6" skirt
Oil Sorbent Boom: 800'
Sorbent Materials: 100 cubic feet

11. SET Environmental, Inc.
450 Sumac Road
Wheeling, IL 60090
(312) 537-9221
Mr. Tom Rusthoven

Vac Trucks: 15 Personnel: 15
Skimmers: -
Vessels: 1 boat
Oil Containment Boom: -
Oil Sorbent Boom: -
Sorbent Materials: 1,600 cubic feet

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12. Mobile Pressure Cleaning, Inc.
3670 Highway 111, P.O. Box 1363
Granite City, IL 62040
(618) 797-0950
Mr. Jim Nardulli

Vac Trucks: 10 Personnel: 50
Skimmers: -
Vessels: 2 Pontoon boats
Oil Containment Boom: 1,000'/6" skirt
Oil Sorbent Boom: 800'
Sorbent Materials: 1,000 cubic feet

13. Absorbant Clay Products
115 North Main Street
Anna, IL 62906
(618) 833-2315
Mr. Bill Thrasher (901/ 682-4235)

Vac Trucks: - Personnel: -
Skimmers: -
Vessels: -
Oil Containment Boom: -
Oil Sorbent Boom: 5,000'
Sorbent Materials: 10,560 cubic feet

MICHIGAN

14. Marine Pollution Control
8631 W. Jefferson
Detroit, MI 48209
(313) 849-2333
Mr. David Usher

Vac Trucks: 10 Personnel: 25
Skimmers: 4 (Manta-Ray, Acme SK 39T, ORS Scavangers, Marko)
Vessels: 10 (Vac Barge, Work Barge, Boom Boats, John Boats)
Oil Containment Boom: 2,500'/6" skirt, 2,500'/12" skirt
Oil Sorbent Boom: 8,000'
Sorbent Materials: 1,000 cubic feet

15. American Tank Service
707 E. Leviston
Ferndale, MI 48220
(313) 546-6100
Mr. Neal Crain

Vac Trucks: 6 Personnel: 10
Skimmers: -
Vessels: -
Oil Containment Boom: -
Oil Sorbent Boom: -
Sorbent Materials: -

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16. Bierlein Environmental Services, Inc.
    2903 S. Graham Road
    Saginaw, MI 48603
    (517) 781-1810
    Mr. Kevin Overly (Midland Office--517/496-0066)

    Vac Trucks: 4   Personnel: 24
    Skimmers: -
    Vessels: -
    Oil Containment Boom: -
    Oil Sorbent Boom: 400'
    Sorbent Materials: 3,200 cubic feet

17. Drury Brothers, [illegible]
    11950 E. Newbury [illegible].
    Durand, MI 48429
    (517) 288-2611
    Mr. Terry Barnum

    Vac Trucks: 4   Personnel: 12
    Skimmers: -
    Vessels: 1 john boat
    Oil Containment Boom: 300'/6" skirt
    Oil Sorbent Boom: 240'
    Sorbent Materials: 30 cubic feet

18. K & D Industrial Services
    6470 Beverly Plaza
    Romulus, MI 48174
    (313) 729-3350
    Mr. Ken Markey

    Vac Trucks: 21   Personnel: 24
    Skimmers: 1 Manta-Ray
    Vessels: -
    Oil Containment Boom: 100'/8" skirt
    Oil Sorbent Boom: 500'
    Sorbent Materials: 300 cubic feet

19. Great Lakes Environmental
    22077 Mound Road
    Warren, MI 48091-1208
    (313) 758-0400
    Mr. Craig Bell

    Vac Trucks: 4   Personnel: 10
    Skimmers: -
    Vessels: -
    Oil Containment Boom: -
    Oil Sorbent Boom: 500'
    Sorbent Materials: 180 cubic feet

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20. Inland Waters Pollution Control
2021 Schaefer
Detroit, MI 48217
(313) 843-8685
Mr. Dave Ferris

Vac Trucks: 13   Personnel: 70
Skimmers: 2
Vessels: 3
Oil Containment Boom: 800'/6" skirt
Oil Sorbent Boom: 600'
Sorbent Materials: 180 cubic feet

21. Power Vac Service, Inc.
5209 S. Pebblecreek
West Bloomfield, MI 48033
(313) 851-9481
Mr. Dennis Mason

Vac Trucks: 15   Personnel: 70
Skimmers: -
Vessels: -
Oil Containment Boom: -
Oil Sorbent Boom: -
Sorbent Materials: -

22. Stenberg Brothers, Inc.
P.O. Box 127
Bark River, MI 49807
(906) 466-9908
Mr. Rick Riedy

Vac Trucks: 6   Personnel: 10
Skimmers: 1 vacuum skimmer
Vessels: -
Oil Containment Boom: -
Oil Sorbent Boom: 300'
Sorbent Materials: 50 cubic feet

MINNESOTA

23. Berg Oil
County Road & Fayal Road
P.O. Box 240
Eveleth MN 55734
(218) 749-3060
Mr. Dan Rogers

Vac Trucks: 6   Personnel: 20
Skimmers: 5 (built by Berg Oil)
Vessels: 4 work/john boats
Oil Containment Boom: 1,200'/8" skirt
Oil Sorbent Boom: 2,000'
Sorbent Materials: 200 cubic feet

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24. Bay West Inc., Environmental Services
5 Empire Drive
St. Paul, MN 55103
(612) 291-0456
Mr. Don Erickson

Vac Trucks: 1   Personnel: 20
Skimmers: 4 (Slickbar, Acme, Skim-Pak)
Vessels: 2 Aluminum Craft
Oil Containment Boom: 250'/6" skirt
Oil Sorbent Boom: 400'
Sorbent Materials: 800 cubic feet

NEW YORK

25. CECOS Environmental International, Inc.
2321 Kenmore Ave.
Buffalo, NY 14207
(716) 873-4200
Mr. Tom Patrick

Vac Trucks: 4   Personnel: 17
Skimmers: -
Vessels: -
Oil Containment Boom: 75'/8" skirt
Oil Sorbent Boom: 1,000'
Sorbent Materials: 120 cubic feet

26. Allwash of Syracuse
6679 Moore Road
Mattydale, NY 13211
(315) 454-4473
Mr. Bill Hickock

Vac Trucks: 3   Personnel: 25
Skimmers: -
Vessels: 1 john boat
Oil Containment Boom: -
Oil Sorbent Boom: 700'
Sorbent Materials: 50 cubic feet

27. American Environmental Services
45 Steel Street
Rochester, NY 14606
(716) 458-6060
Mr. Scott Wolff

Vac Trucks: 2   Personnel: 45
Skimmers: 2
Vessels: 2 utility boats
Oil Containment Boom: 400'/12" skirt
Oil Sorbent Boom: 300'
Sorbent Materials: 100 cubic feet

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28. Duffs Environmental Maintenance
Laona Road
Forestville, NY 14062
(716) 965-4245
Mr. Bob Duff

Vac Trucks: 11 Personnel: 10
Skimmers: 1
Vessels: 1
Oil Containment Boom: 500'/12" skirt
Oil Sorbent Boom: 1,000'
Sorbent Materials: 500 cubic feet

29. Environmental Oil, Inc.
P.O. Box 315
Syracuse, NY 13209
(315) 471-0503
Mr. Don Fletcher

Vac Trucks: 15 Personnel: 140
Skimmers: 4 Manta Ray
Vessels: 6 work/john boats
Oil Containment Boom: 3,000'/12" skirt
Oil Sorbent Boom: 3,000'
Sorbent Materials: 9,600 cubic feet

30. Fourth Coast Pollution Control
St. Lawrence Ave, P.O. Box 278
Waddington, NY 13694
(315) 388-5909
Mr. Dick Mayette

Vac Trucks: 15 Personnel: 80
Skimmers: 2 (40' X 14', and 10' X 30' LCM Skimmers)
Vessels: 18 work boats
Oil Containment Boom: 6,000'/36" skirt
Oil Sorbent Boom: 4,500'
Sorbent Materials: 4,800 cubic feet

OHIO

31. A.C.E.S. (d.b.a. Envirosafe)
816 Otter Cliff Road
Oregon, OH 43616
(419) 255-5607
Mr. Lanny Nelson

Vac Trucks: 5   Personnel: 15
Skimmers: 1 Scavenger
Vessels: -
Oil Containment Boom: 2,000'/6" skirt
Oil Sorbent Boom: 1,000'
Sorbent Materials: 100 cubic feet

32. The Andersons Industrial Products Division
Slikwik Sorbents
1200 Dussel Drive
Maumee, OH 43537
(419) 893-5050
Mr. Jack Vanderzwan

Vac Trucks: -   Personnel: -
Skimmers: -
Vessels: -
Oil Containment Boom: -
Oil Sorbent Boom: 4,500'
Sorbent Materials: 8,000 cubic feet

33. Cousins Waste Control Corporation
1801 E. Matzinger
Toledo, OH 43612
(419) 726-1500
Mr. Dan Tarry

Vac Trucks: 5   Personnel: 15
Skimmers: 1 Manta Ray
Vessels: 3 Zodiacs (10.5', 12.5', and 18')
Oil Containment Boom: 750'/12" skirts
Oil Sorbent Boom: 3,200'
Sorbent Materials: 100 cubic feet

34. Chemserv Environmental Company, Inc.
3810 Lacon Road
Hilliard, OH 43026
(614) 771-1881
Mr. Mike Green

Vac Trucks: 10   Personnel: 50
Skimmers: 2 gas powered
Vessels: 2 john boats
Oil Containment Boom: 400'/6" skirt, 200'/12" skirt
Oil Sorbent Boom: 750'
Sorbent Materials: 800 cubic feet

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35. Environmental Enterprises, Inc.
10147 Springfield Pike
Cincinnati, OH 45215
(513) 772-2818
Mr. Dan McCabe

Vac Trucks: - Personnel: 70
Skimmers: -
Vessels: 2 john boats
Oil Containment Boom: 300'/6" skirt
Oil Sorbent Boom: 1,000'
Sorbent Materials: 6,400 cubic feet

36. Environmental Management Control, Inc.
1141 County Road #51
Genoa, OH 43430
(419) 855-8378
Mr. Fred Sander

Vac Trucks: 3 Personnel: 55
Skimmers: 2 Manta Ray
Vessels: 5 (john boats, flat bottom, one hydraulic dredge)
Oil Containment Boom: 1,000'/8" skirt, 1,000'/12" skirt
Oil Sorbent Boom: 2,000'
Sorbent Materials: 300 cubic feet

37. ETSS, Inc.
5435 Scarff Rd.
New Carlisle, OH 45371
(513) 845-3912
Mr. Bill Barrow

Vac Trucks: 1 Personnel: 3
Skimmers: -
Vessels: -
Oil Containment Boom: -
Oil Sorbent Boom: 250'
Sorbent Materials: 100 cubic feet

38. GSX Chemical Services, Inc.
7415 Bessemer Ave.
Cleveland, OH 44127
(216) 441-5628
Mr. Tim Kent

Vac Trucks: 1 Personnel: 20
Skimmers: -
Vessels: -
Oil Containment Boom: -
Oil Sorbent Boom: -
Sorbent Materials: 400 cubic feet

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39. Metropolitan Environmental, Inc.
P.O. Box 609
Celina, OH 45822
(419) 586-6638
Mr. Chris Johnson

Vac Trucks: 3 Personnel: 5
Skimmers: -
Vessels: -
Oil Containment Boom: -
Oil Sorbent Boom: -
Sorbent Materials: -

40. O.H. Materials Corporation
16406 US Rt. 224 East
Findlay, OH 45840
(419) 423-3526
Ms. Patty Zigler/Mr. Chris Witter

Vac Trucks: 20 Personnel: 125
Skimmers: 10
Vessels: 20 work boats
Oil Containment Boom: 10,000'/36" skirt
Oil Sorbent Boom: 6,000'
Sorbent Materials: 6,400 cubic feet

41. Westinghouse-Haztech
5439 Roan Road
Sylvania, OH 43560
(419) 389-0150
Mr. Craig Hassan

Vac Trucks: 1 Personnel: 15
Skimmers: -
Vessels: 1 john boat
Oil Containment Boom: 100'/12" skirt
Oil Sorbent Boom: 500'
Sorbent Materials: 525 cubic feet

42. 7-7, Inc.
607 Freedlander Rd.
Wooster, OH 44691
(216) 262-8877
Mr. Howard Cox

Vac Trucks: 18 Personnel: 20
Skimmers: -
Vessels: -
Oil Containment Boom: -
Oil Sorbent Boom: 100'
Sorbent Materials: 30 cubic feet

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PENNSYLVANIA

43. Associated Chemical And Environmental Services (A.C.E.S.)
    (d.b.a. Envirosafe)
    900 E. 8th Ave.
    King of Prussia, PA 19406
    (215) 962-0800
    Mr. Gordon Chin

    Vac Trucks: 3   Personnel: 15
    Skimmers: 1
    Vessels: -
    Oil Containment Boom: 2,000/12" skirt
    Oil Sorbent Boom: 200'
    Sorbent Materials: 150 cubic feet

44. AMO Pollution Services, Inc.
    Rd. #2, Box 311B
    Canonsburg, PA 15317
    (412) 921-8486
    Ms. Mary Cross

    Vac Trucks: 3   Personnel: 50
    Skimmers: 4 Manta Ray
    Vessels: 3 work boats
    Oil Containment Boom: 750'/12" skirt
    Oil Sorbent Boom: 1,750'
    Sorbent Materials: 150 cubic feet

45. Petroclean North, Inc.
    501 Public Way
    Warren, PA 16365
    (814) 726-1751
    Ms. Mary Ann Paris

    Vac Trucks: 8   Personnel: 32
    Skimmers: 4 (Manta Ray and Oil Recovery System)
    Vessels: 2 work boats
    Oil Containment Boom: 600'/8" skirt
    Oil Sorbent Boom: 750'
    Sorbent Materials: 300 cubic feet

46. Total Recovery, Inc.
    P.O. Box 476
    Parker Ford. PA 19457
    (215) 495-6267
    Mr. Tom Lewis

    Vac Trucks: 11   Personnel: 20
    Skimmers: -
    Vessels: 3 john boats
    Oil Containment Boom: -
    Oil Sorbent Boom: 2,000'
    Sorbent Materials: 300 cubic feet

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47. McCutcheon Enterprises, Inc.
Rd. 1 Horse Shoe Manor
Vandergrift, PA 15690-9603
(412) 568-3623
Mr. Harry Pavone

Vac Trucks: 4 Personnel: 50
Skimmers: 3 Acme
Vessels: 4 work boats
Oil Containment Boom: 3,000'/6" skirt, 2000'/12" skirt
Oil Sorbent Boom: 8,000'
Sorbent Materials: 1,500 cubic feet

WISCONSIN

48. Matarah Industries
1339 N. Milwaukee St.
Milwaukee, WI 53202
(414) 272-1965
Mr. Bob Rothe

Vac Trucks: - Personnel: -
Skimmers: -
Vessels: -
Oil Containment Boom: -
Oil Sorbent Boom: 9,000'
Sorbent Materials: 1,800 cubic feet

49. AAA Environmental Industries Inc.
6510 W. Forest Home Ave.
Milwaukee, WI 53220
(414) 541-1440
Mr. Don Gebert

Vac Trucks: 5 Personnel: 5
Skimmers: 1 fan type
Vessels: -
Oil Containment Boom: 300'/14" skirt
Oil Sorbent Boom: 300'
Sorbent Materials: 20 cubic feet

50. E & K Hazardous Waste Services, Inc.
2905 Paine Ave.
Sheboygan, WI 53082
(414) 458-6030
Mr. Chris Hohol

Vac Trucks: 8 Personnel: 80
Skimmers: -
Vessels: 2 work boats, 1 Dredge Cat
Oil Containment Boom: 150'/8" skirt
Oil Sorbent Boom: 500'
Sorbent Materials: 6,400 cubic feet

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CANADA

51. Pemic Corporation
291 St. Clair Parkway
Corunna, Toronto, Ontario NON1G0
(519) 862-2271
Mr. Ron Hill

Vac Trucks: - Personnel: -
Skimmers: -
Vessels: -
Oil Containment Boom: 50,000'/20" skirt
Sorbent Boom: -
Sorbent Materials: -

TOTALS

Companies: 51 Personnel: 1,689 Vac Trucks: 349

Skimmers: 105

Vessels: 134

Oil Containment Boom/6" Skirt: 11,550' (2.2 miles)
Oil Containment Boom/8" Skirt: 6,425' (1.2 miles)
Oil Containment Boom/12" Skirt: 14,370' (2.7 miles)
Oil Containment Boom/14" Skirt: 300' (0.06 miles)
Oil Containment Boom/18" Skirt: 10,000' (1.9 miles)
Oil Containment Boom/20" Skirt: 50,000' (9.5 miles)
Oil Containment Boom/36" Skirt: 17,000' (3.2 miles)
Total Amount of Oil Containment Boom: 110,095' (20.8 miles)

Oil Sorbent Boom: 88,440' (16.8 miles)

Sorbent Materials: 76,545 cubic feet (24 trailers or 25,515 bales)

Skimmer Types: Manta-Ray, Scavenger, Duck Bill, Gas powered, Saucer, ACME, Marco-Pump, LCM, Skim Pak, Oil Recovery System.

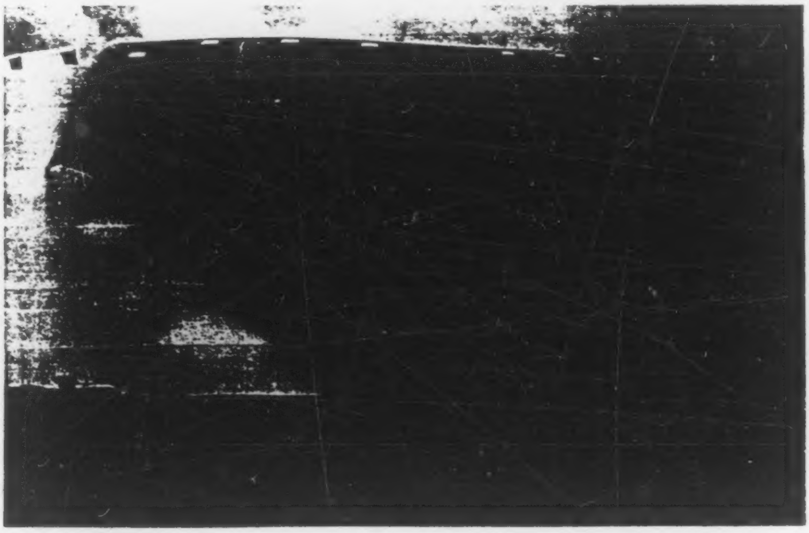
Vessel Types: Utility boats, work boats, john boats, pontoon boats, aluminum crafts.

INTERIM FINAL REPORT
MAY 13, 1983

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY	OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE	OFFICE OF EMERGENCY AND REMEDIAL RESPONSE

THE OIL SPILL PREVENTION, CONTROL, AND COUNTERMEASURES PROGRAM

TASK FORCE REPORT



INTERIM FINAL REPORT
MAY 13, 1988

THE OIL SPILL PREVENTION, CONTROL, AND COUNTERMEASURES PROGRAM TASK FORCE REPORT

DRAFT: DO NOT CITE OR QUOTE

NOTICE:

THIS DOCUMENT IS A PRELIMINARY DRAFT. IT HAS NOT BEEN FORMALLY RELEASED BY THE U.S. ENVIRONMENTAL PROTECTION AGENCY AND SHOULD NOT AT THIS STAGE BE CONSTRUED TO REPRESENT AGENCY POLICY. IT IS BEING CIRCULATED FOR COMMENTS ON ITS TECHNICAL ACCURACY AND POLICY IMPLICATIONS.

INTERIM FINAL REPORT
May 13, 1988

ACKNOWLEDGMENTS

This report is the result of an in-depth review and program evaluation conducted by the Oil Spill Prevention, Control, and Countermeasures (SPCC) Program Task Force. It would not, however, have been possible without the assistance and suggestions of many individuals.

The Chairpersons for the several Task Force committees, Hans Crump-Wiesner, Dr. K. Jack Kooyoomjian, John E. Riley, and Dr. Joseph Lafornara of the U.S. Environmental Protection Agency (EPA) Emergency Response Division, and Vice Chairpersons, Captain Charles Corbett of the U.S. Coast Guard and Thomas Massey of EPA Region III, wish to thank all of the Task Force members for providing vital support in the preparation of this document.

The Task Force members are to be commended for making significant contributions to an effort that will result in a more effective SPCC program. The Task Force findings and recommendations represent consensus decisions and judgements of the Task Force membership. I am especially grateful to the EPA staff members from various Headquarters organizations and the ten EPA Regions who assisted in developing this report. Special thanks are also given to those Task Force members who represented other Federal and State agencies.

The assistance provided by the contractor support staff of Environmental Monitoring & Services, Inc., ICF, Inc., and the Technical Assistance Teams at EPA Headquarters and in the Regional offices have also proven invaluable.

Timothy Fields, Jr.

Timothy Fields, Jr., Chairperson

Spill Prevention, Control, and
Countermeasures Program Task Force

INTERIM FINAL REPORT
MAY 13, 1988

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Richard Beam, Department of Transportation
Raymond Beittel, Department of the Interior
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Rich Braddock, Office of Underground Storage Tanks
Richard Brogan, Occupational Safety and Health Administration
Terry Brubaker, Region IX
Bob Caron, Region III
Judd Callen, Region III
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Hans Crump, Office of Emergency and Remedial Response
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THE OIL SPILL PREVENTION, CONTROL, AND COUNTERMEASURES PROGRAM TASK FORCE REPORT

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EXECUTIVE SUMMARY

This report presents the findings and recommendations of the Oil Spill Prevention, Control, and Countermeasures (SPCC) Program Task Force, based on a review of existing regulations (40 Code of Federal Regulations (CFR) Parts 109, 110, 112, 113, 114, and 300), and associated implementation issues. The report was prepared by a Task Force established by Dr. J. Winston Porter, Assistant Administrator for the U.S. Environmental Protection Agency (EPA) Office of Solid Waste and Emergency Response, on February 2, 1988.

This study was initiated in response to the January 2, 1988, release of approximately one million gallons of diesel fuel from the Ashland Oil facility in Floreffe, Pennsylvania, and the subsequent contamination of the Monongahela and Ohio Rivers. The spill was caused by the collapse of an above-ground storage tank; the diesel fuel held by the tank flowed over the surrounding dike and found its way into the Monongahela and Ohio Rivers. As a result of the spill, fifteen water intakes were shut down, water supplies to over 2.7 million residents were disrupted, schools and businesses were closed, and thousands of fish and waterfowl were destroyed.

The Ashland Oil facility did not have an up-to-date SPCC Plan, but was within the legal time requirements to amend its Plan. Subsequent to the spill, Ashland Oil amended its SPCC Plan. The Region III On-Scene Coordinator reviewed this amended Plan and found it to be severely deficient with respect to contingency planning.

The release from the Ashland Oil facility has been of considerable interest to Congress and the public. A field hearing was convened in Pittsburgh on January 26, 1988, and numerous hearings have since been held in Washington, D.C., to discuss the Ashland Oil spill. Four related bills are currently being considered by Congress in order to create new Federal programs addressing above-ground storage tanks. The Task Force has been charged with exploring the various alternatives available to ensure that similar spills do not occur in the future, or that if such a spill does occur, negative impacts are minimized.

THE OIL SPILL PREVENTION, CONTROL, AND COUNTERMEASURES PROGRAM

The SPCC regulations were developed in 1973 under the authority of section 311 of the Clean Water Act. The SPCC program sets minimum standards for certain aspects of facility design, operation, and procedures. The program's requirements were intended to provide the flexibility needed to regulate more than 650,000 diverse facilities. The SPCC program regulates non-transportation related facilities that may reasonably be expected to discharge oil into or upon the navigable waters of the U.S. or adjoining shorelines, and that have oil storage capacities of more than 660 gallons in a single tank or collectively 1,320 gallons or more above-ground or 42,000 gallons or more underground. The regulations require that a SPCC Plan be prepared within six months of commencement of operation and implemented within one year after commencement of operations. The SPCC Plan for the facility should follow the guidelines in 40 CFR Part 112.7 for prevention and control of an oil spill. If this is not practicable, a strong contingency plan following the provisions in 40 CFR Part 109 must be prepared. The SPCC Plan must be certified by a registered professional engineer.

The SPCC regulations have not been updated in the past decade. In light of environmental legislation and technology development during this time, the Task Force believes that the SPCC regulations and program implementation could be significantly improved. The major findings and recommendations of the Task Force are presented below.

FINDINGS AND RECOMMENDATIONS

Survey of Facilities

1. Finding. Only estimates of the number of SPCC facilities nationwide and comprehensive data on isolated populations of SPCC facilities are available. Data on the number of above-ground storage tanks, tank size, age, and method of construction are not available. Data on the location or spill history of SPCC facilities are also unavailable. Based on the available information, it is estimated that more than 650,000 facilities are subject to SPCC regulations. Accurate information is vital in assessing the impact of any proposed regulatory changes and would greatly assist national program management.

   Recommendation. The Task Force recommends that a national survey be conducted to inventory facilities with above-ground storage tanks that are subject to the requirements of the SPCC regulations. The survey should include specific information about the number of above-ground storage tanks, tank content, size, age, and method of construction, as well as data on each facility regarding its spill history and its proximity to major drinking water supplies and sensitive ecosystems.

2. Finding. Part 311 of the Clean Water Act directs the EPA, as may be appropriate, to promulgate regulations concerning discharges of oil and hazardous substances. The EPA has created the SPCC program for regulation of oil storage and discharges. Through the EPA Reportable Quantities program, EPA is notified of potentially harmful discharges of hazardous substances. EPA is continuing to study the storage of such hazardous substances. The Task Force is aware of ongoing studies of hazardous facilities under Section 305(b) of the Superfund Amendments and Reauthorization Act of 1986 (SARA) and the Accidental Release Information Program under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

   Recommendation. Before the EPA can properly consider a prevention and inspection program for hazardous substances, an inventory should be conducted. This inventory will help the Agency to understand the current problem and enable careful and considered decisions to be made regarding a comprehensive prevention program.

3. Finding. A good mechanism for developing an inventory of SPCC-regulated facilities does not currently exist. This mechanism is needed to provide updated lists of SPCC facilities, and would be vital in assessing the impact of proposed regulations and assisting in program management.

   Recommendation. The Task Force recommends that the SPCC regulations be amended to require all owners and operators of any new and/or existing facility to notify EPA if the facility is subject to the SPCC requirements.

Inspections

4. Finding. The Task Force has determined that the current level of annual SPCC inspections is inadequate. The Fiscal Year 1988 budget allocates $1.1 million in extramural contractor funds for SPCC inspections and oil spill responses, which is sufficient for conducting 1,000 inspections during 1988. Many benefits would be realized by increasing the number of inspections, among them a greater prevention awareness, increased compliance, and fewer spill incidents. In other Federal and State-delegated EPA programs similar to the SPCC program, at least 40 percent of the regulated facilities are inspected.

   Recommendation. Increased numbers of SPCC inspections should be conducted within the EPA Regions. The Task Force recommends that a long-term goal of 6,500 annual inspections should be established.

5. Finding. Federal enforcement policy is most effective when implemented within the program in which inspections are conducted. Three of the 10 EPA Regions currently enforce the SPCC regulations through Regional removal programs, which are also responsible for conducting inspections.

   Recommendation. In the interest of national consistency, the Task Force recommends that the Regional Administrators be requested to strongly consider transferring SPCC enforcement responsibilities to the removal programs in all Regions.

6. Finding. The implementation of SPCC inspections has always been, and continues to be, a Regional responsibility. However, to provide more consistency, guidance and training support is needed from EPA Headquarters.

Recommendation. The Task Force recommends that a SPCC inspection manual, which recognizes Regional differences and yet provides general consistency, be developed for the entire program, and that a national training program for SPCC inspectors be initiated. Many local fire marshals inspect above-ground storage tank facilities from a safety point of view, especially with regard to fire and explosion prevention; therefore, the Task force recommends that a SPCC training program be established to utilize fire marshals for conducting SPCC inspections simultaneous to fire, explosion, and safety inspections.

7. Finding. Currently, an explicit and consistent policy for scheduling or tracking SPCC inspections does not exist. As a result, some environmentally significant facilities may not receive inspections.

   Recommendation. The Task Force recommends the development of a SPCC inspection targeting policy that would prioritize the inspections based on the proximity of facilities to potable water supplies, sensitive ecosystems, the size or age of facilities, or other criteria.

8. Finding. The results of completed SPCC inspections have not been tracked in a consistent, computerized manner throughout the EPA Regions. As a result, program management and enforcement are seriously impeded.

   Recommendation. All SPCC inspections should be recorded in a computerized database that is consistent in format throughout the EPA Regions. The database should include data regarding letters of deficiencies, violations, and related data pertinent to all facilities, such as discharge reporting and inspection history for each facility inspected over time.

9. Finding. Regional inconsistencies were noted in assessing penalties for violations during inspections. Current civil penalty levels for noncompliance may not be appropriate nor adequate.

   Recommendation. The Task Force recommends that EPA develop a formal penalty policy, and that 40 CFR Part 114 (Civil Penalties for Violation of Oil Pollution Prevention Regulations) be examined for potential regulatory changes to implement this recommendation.

Changes to the Current SPCC Regulations

10. Finding. Compliance with many aspects of the SPCC regulations is currently performed on a discretionary basis. Many aspects of the current regulations are guidelines rather than mandatory requirements.

Recommendation. The Task Force recommends changes in the SPCC regulations, particularly to 40 CFR Part 112.7, that would specify mandatory compliance with many of the guidelines in the current regulations.

11. Finding. The Task Force found that SPCC Plans do not contain a facility-specific contingency plan with detailed countermeasures to be employed if a spill should extend beyond the facility boundary in an uncontrolled manner.

Recommendation. The Task Force recommends that the SPCC regulations be amended to require inclusion of specific contingency plans, which should be coordinated with Local Emergency Planning Committees to reflect the requirements of Title III of SARA, in every facility's SPCC Plan.

12. Finding. Specific guidelines for tank integrity standards, testing, and emergency response training are not provided in the SPCC regulations.

Recommendation. The Task Force recommends that specific changes be made to the SPCC regulations regarding the preparation and implementation of a SPCC Plan. These recommendations include: (1) requiring new tankage to meet certain industry codes, such as American Petroleum Institute 650 or National Fire Protection Association 30; (2) requiring integrity testing for new above-ground storage or old tanks with no secondary containment; for example, hydrostatic testing or 100 percent radiographic inspection of welds in lieu of hydrostatic testing, until new test protocols are developed for identifying tanks with unacceptable risks of fracture; (3) requiring facility owners and operators to inspect tanks and secondary containment periodically; and (4) ensuring that employees at selected facilities undergo emergency response training.

13. Finding. The current SPCC regulations do not differentiate requirements based on the size of a facility. The Task Force found that facility size may provide an indication of the relative magnitude of potential environmental impacts that could result from a release at a facility.

Recommendation. The Task Force recommends that the SPCC regulations be modified to reflect varying degrees of stringency based on facility size. In this way, large-capacity facilities would be subject to the most stringent requirements.

Response

14. Finding. The Task Force found that the Federal response to the Ashland Oil spill was in full accord with provisions of the National Oil and Hazardous Substance Pollution Contingency Plan (NCP), but improvements in response coordination may be possible.

    Recommendation. Based on a review of the Ashland Oil spill and other major spill events, the Task Force recommends that the role of the Regional Response Team and the National Response Team (NRT) at a major discharge be examined by the NRT to identify procedures that would improve communications during response activities.

State and Local Role

15. Finding. At least nine States have developed oil spill prevention programs independent of the Federal program.

    Recommendation. The Task Force recommends a study of these State programs for possible incorporation of effective provisions into the revisions to the Federal SPCC regulations.

16. Finding. More effective utilization of State and local resources in the SPCC program may lead to increased inspections and compliance with regulations; however, authority for State delegation does not exist.

    Recommendation. The Task Force recommends that the mechanisms for increasing the involvement of State and local authorities be explored.

17. Finding. The NCP, which is currently under revision, could facilitate increased cooperation among Regional, State, and local authorities in the event of a spill.

    Recommendation. The Task Force recommends that the NRT investigate the feasibility of redefining the "first Federal official" on-scene as the "first government official." In addition, the Task Force recommends that 40 CFR Part 109 (Criteria for State, Local and Regional Oil Removal Contingency Plans) be revised and incorporated into future amendments to the NCP.

Roles of Other Federal Agencies

18. Finding. The Federal authority for inspections and release response is unclear in some areas. The Task Force identified other Federal agencies with authority similar to the EPA SPCC regulations. The Task Force found that to maintain consistency and the fullest utilization of resources, communication and cooperation should be maintained and improved between all relevant Federal authorities.

    Recommendation. The Task Force recommends that, if appropriate, new or updated Memoranda of Understanding (MOUs) be established between EPA and the Department of Transportation (including the U.S. Coast Guard, the Office of Pipeline Safety, and the Office of Hazardous Materials Transportation), the Department of the Interior, the Department of Labor, and other governmental bodies.

Research

19. Finding. EPA's research and development program in oil spill prevention and response has been suspended. The Ashland Oil facility spill highlighted the need for specific research in several areas of oil spill removal and control technologies.

    Recommendation. The Task Force recommends that funds and personnel resources be allocated for research in order to develop technologies to solve the known limitations in oil spill removal and control technology (e.g., deployment of booms in high velocity inland waters).

INSTITUTING THE TASK FORCE RECOMMENDATIONS

In reviewing the potential benefits that can be derived from the incorporation of the Task Force recommendations into the SPCC program, the Task Force recognizes that increased Federal resources must be devoted to the program. Implementation of the recommendations of the Task Force should expeditiously begin in order to significantly reduce potential hazards attributed to oil storage tanks and associated facilities. The Ashland Oil facility has caused the public, Congress, the private sector, and Federal, State, and local officials to assess the adequacy of the oil spill prevention program. The Task Force believes that a timely response by Federal and other authorities will restore public confidence in the ability of the private sector to comply with statutory and regulatory requirements, as well as in the government's ability to prevent and respond to such major accidents. -

The Task Force believes that the current SPCC program requirements and procedures can be amended so as to assist in the prevention of incidents such as the recent Ashland Oil spill. The recommendations contained in this report are designed to move activities in this direction. The Task Force, as part of its review, has created a five-year plan (as presented in Exhibit ES-1) for implementing these recommendations. This strategy will serve to re-emphasize program priority, to conserve resources while expanding the program, and to correct deficiencies in the current SPCC Program that have been identified by the Task Force. This five-year plan is provided on the following page.

EXHIBIT ES-1. FIVE-YEAR PLAN FOR FULL IMPLEMENTATION OF A SPCC MANAGEMENT PROGRAM

Year One	Years Two and Three	Year Four	Year Five
Begin increasing number of inspections	Increase number of inspections	Increase inspections by training and utilizing State and local officials	Target total inspections performed by all officials at 6,500
Design demonstration projects with State and local officials	Evaluate and refine inspection training for local officials	Analyze new data	Evaluate the success of guidance and training
Identify training and guidance needed	Establish guidance and training procedures for EPA staff	Evaluate public education	Assess successes vs. failures in the research and development plan
Design a database for SPCC information	Complete rulemakings	Implement results of research and development	Collect additional data
Redesign enforcement policy	Collect and input new data		Implement public education program
Propose new regulations	Begin public education project		
Develop MOUs and investigate long-term options	Continue research and development		
Design public education program	Develop procedures for greater State and local involvement in program		
Re-institutionalize necessary research and development			

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CHAPTER 1

INTRODUCTION

1.1 PURPOSE

This report presents the initial findings of the Oil Spill Prevention, Control, and Countermeasure (SPCC) Task Force created by the U.S. Environmental Protection Agency (EPA) in response to the release of approximately one million gallons of diesel fuel from the Ashland Oil facility in Floreffe, Pennsylvania. The Task Force membership includes EPA Headquarters and Regional personnel, and representatives from the Department of Labor's (DOL) Occupational Safety and Health Administration (OSHA), the U.S. Coast Guard (USCG), the Ohio River Valley Water Sanitation Commission (ORSANCO), and other Federal, State, and Regional agencies. The SPCC Task Force was charged by Dr. J. Winston Porter, Assistant Administrator of EPA for Solid Waste and Emergency Response, with conducting a thorough review of existing statutory authority and implementing regulations for the prevention and control of oil spills (40 Code of Federal Regulations (CFR) Parts 109, 110, 112, 113, and 114) and with examining possible improvements to implement the program more effectively. The purpose of reviewing the existing SPCC program is to compile recommendations for appropriate changes in regulations and program implementation. In this progress report, the Task Force presents the issues studied and the next steps recommended.

1.2 BACKGROUND

On January 2, 1988, a major release of diesel oil, with a minor release of gasoline, occurred at an Ashland Oil terminal in Floreffe, Pennsylvania. The cause of the release was determined to be the sudden and complete failure of a four-million-gallon above-ground storage tank. An estimated 750,000 gallons of diesel fuel moved in a wave that breached the secondary containment structure and entered the Monongahela River. The oil reached the Ohio River in Pittsburgh, Pennsylvania, within 36 hours. Fifteen water intakes were subsequently shut down, and numerous communities along the Ohio River were forced to discontinue or filter water supplies; more than 2,700,000 persons have been affected by the Ashland spill.

The short-term environmental effects of the spill included the death of an estimated 10,000 fish and 2,000 birds, and the contamination of hundreds of miles of shoreline and structures. The long-term effects are more difficult to assess, but could include considerable damage to river vegetation and sediment. The negative ecological effects of the spill were mitigated because the spill occurred in January, when most river wildlife is inactive.

As a result of the release, EPA conducted an inspection of the Ashland facility and determined that the facility's secondary containment structures were adequate to contain the volume of the largest single tank, but that the engineering design of the existing dikes was suspect. EPA found that, although Ashland had developed a Plan purporting to comply with the SPCC program, the Plan did not adequately address the various provisions of 40 CFR Part 112.

The January 2, 1988, release at the Ashland Oil facility was, by any standard, a major release. It should, however, be viewed in the context of other major oil spills that have occurred in the waters of the United States. According to EPA records, approximately 19,000 reports of oil discharges were made to Federal authorities in 1987. Of these, 20 to 30 represent spills in excess of 150,000 gallons. A tank rupture such as the one at the Ashland Oil facility illustrates but one of many potential causes of major discharges affecting inland waters. For example, during Hurricane Agnes in 1972, a discharge of six to seven million gallons of black sludge resulted from the inundation of oil storage lagoons near Pottstown, Pennsylvania. In April, 1976, almost two million gallons of crude oil were spilled due to manifold failure in a pipeline in Martinsville, Illinois. A 1985 oil well blowout in Eastland County Texas caused a release of over 13 million gallons of oil. Because major oil spills result from a variety of causes, the SPCC Task Force has recommended changes that will increase the overall effectiveness of the program, in addition to decreasing the risk of catastrophic tank rupture such as that which occurred at the Ashland Oil facility.

Uncontrolled releases of oil alter the physical, chemical, and biological characteristics of the physical environment, which in turn adversely affect human health and the health of other species. Human health is affected through the ingestion or inhalation of various oil components, as well as through exposure involved during cleanup efforts. Human welfare is also affected by spills through the subsequent decreased aesthetic values of land and water, and the decreased value in private property. These decreased values will reduce the earning potential for those involved in many businesses, particularly those that are directly dependent upon a healthy physical environment. Because of the physical and toxicological characteristics of oil, releases can have a severe affect on the environment. Such effects include the reduction of: (1) species diversity; (2) available habitats; (3) the survivability of eggs and juvenile life stages; and (4) the numbers of individuals. For these reasons, measures to protect human and environmental health from future catastrophic oil spills must be expedited.

As a first step in this evaluation, the Task Force has undertaken an in-depth study of the contents of the existing SPCC regulations. These regulations, promulgated under the authority of section 311(j) of the Clean Water Act (CWA), became effective on January 10, 1974, and were amended March 26, 1976. The regulations establish, among other things, procedures, methods, and equipment to prevent and control discharges of oil. The SPCC program (40 CFR Part 112) requires non-transportation-related facilities with buried storage capacity in excess of 42,000 gallons or above-ground storage capacity in excess of 660 gallons in a single tank or 1320 gallons in aggregate, that could reasonably be expected to discharge oil into the navigable waters of the U.S., to prepare a SPCC Plan. SPCC Plans contain information regarding prevention and containment equipment, training procedures, and contingency plans. The adequacy of the SPCC Plans must be certified by a registered Professional Engineer (PE); automatic amendments and reviews of SPCC Plans for any facility with a spill discharge in excess of 1,000 gallons or more than two reportable spills (pursuant to 40 CFR Part 110) in 12 months are required. The SPCC program also includes a provision for unannounced inspections by EPA personnel to determine compliance.

1.3 SCOPE OF TASK FORCE ACTIVITY

The Task Force has directed its attention to a number of specific aspects of the existing program. Four committees and one ad hoc committee were formed to address contingency planning, SPCC facilities, State and other Federal programs, industry tank standards, response planning and procedures, inspection programs, and implementation issues; to inventory tanks in use in the U.S.; and to explore the issue of delegation to the States. The findings and recommendations of the Task Force are presented in this report.

1.4 FORMAT OF THIS REPORT

The format of this report reflects the committee and subcommittee structure of the Task Force. Chapters 2 through 6 each contain a section devoted to a review of the current situation, as well as a section outlining the recommendations of the Task Force. Chapter 2, "Recommendations for Modifications to SPCC Regulations," presents a detailed review of the various components- of the existing SPCC program; indicates industry, other Federal, and State programs that the Task Force researched for useful strategies; and presents detailed recommendations. Chapter 3, "National Inventory of Facilities Subject to SPCC Regulations," presents a discussion of the need for information on the number and characteristics of tanks affected by SPCC regulations and of the difficulty in obtaining accurate data from available sources. Chapter 4, "Inspection Program and Procedures," provides statistics on inspections conducted under the SPCC program since its inception, information on the training of inspectors, and recommendations for the future. Response procedures and implementation issues are discussed in Chapter 5, "Response Activities." Chapter 6, "State Delegation Issues," explores the possibility of full or partial delegation of authority to the States. Chapter 7, "Review of Proposed Legislation," presents a review of current legislative initiatives related to oil spill prevention and above-ground tanks; the Task Force's evaluations of these bills are also presented. A Glossary of Acronyms used throughout this report is provided following Chapter 7.

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CHAPTER 2

RECOMMENDATIONS FOR MODIFICATIONS TO SPCC REGULATIONS

Several Federal agencies and numerous States regulate the production, refining, transportation, and storage of petroleum and petroleum products. This chapter reviews the regulations promulgated by EPA, the Department of Transportation (DOT), the Department of the Interior (DOI), and DOL relevant to spill prevention, control, and contingency planning for fixed facilities. Regulations promulgated by selected States are also reviewed.

2.1 CURRENT SPCC REGULATIONS

The SPCC regulations, promulgated under the authority of section 311(j) of the CWA, allow members of the regulated community to create and implement spill prevention, control, and contingency plans in accordance with individual facility needs. Over the past several years, field inspection reports have shown that 60 percent of facilities have deficient SPCC Plans but are quickly brought into compliance. The Ashland Oil Company's discharge into the Monongahela River near Floreffe, Pennsylvania earlier this year has brought to EPA's attention the possible need for modification of certain sections of these regulations. Regulations related to oil spill prevention are contained in 40 CFR Parts 109, 110, 112, 113, and 114, which are reviewed briefly below. Recommendations developed by the Task Force for modification of certain regulations are discussed in the following paragraphs and summarized in Exhibit 2-1.

2.1.1 Recommendations Applicable to 40 CFR Part 109

Regulations in 40 CFR Part 109 establish the minimum criteria for the development of oil removal contingency plans for certain inland navigable waters of the United States by State, local, and regional agencies in consultation with the regulated community. The development and implementation of such plans is required to be consistent with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

The requirements of 40 CFR Part 109 are referenced in Part 112. These requirements, however, deal with contingency planning for State, local, and regional agencies, not facilities. The substance of Part 109 would be appropriate in the NCP; therfore, the Task Force recommends that the content of 109 be incorporated into amendments to the NCP. The Task Force further recommends that a new section with detailed criteria for SPCC facility planning be incorporated into 40 CFR Part 112.

The Task Force recommends that site contingency planning be coordinated with the work of the Local Emergency Planning Committees (LEPCs) and State Emergency Response Commissions (SERCs) created under SARA Title III.

2.1.2 Recommendations Applicable to 40 CFR Part 110

Regulations in 40 CFR Part 110 prohibit the discharge of oil in such a way that applicable water quality standards are violated, or that may cause a film or sheen upon, or discoloration of, the surface of water or through the water.

These regulations have been recently reviewed and updated (52 FR 10719, April 2, 1987); the Task Force believes that the regulations adequately reflect the intent of Congress outlined in section 311(b)(3) and (4) of the CWA and believes that further modifications are not necessary at this time.

2.1.3 Recommendations Applicable to 40 CFR Part 112

Part 112 deals with prevention of oil spills and the preparation of control and countermeasure plans. These regulations establish procedures, methods, and equipment requirements to prevent the discharge of oil from non-transportation-related onshore and offshore facilities into or upon the navigable waters of the United States or adjoining shorelines.

The Task Force recommends changes to 40 CFR Part 112 in three principal areas: (1) strengthening existing regulations so that SPCC Plans more directly and explicitly address prevention and control requirements, and amending the regulations so that specific contingency plans are required for all facilities; (2) adopting or citing other regulations or standards that are applicable to oil facilities; and (3) strengthening of the language currently found in Part 112 to require certain prevention practices. A discussion of these recommendations follows.

A SPCC Plan should primarily be designed to prevent the occurrence of spills and secondarily to provide an effective procedure to control oil spills on-site. The Task Force believes that every SPCC Plan, based on good engineering and environmental practices, should contain a contingency plan with detailed countermeasures to be employed if a spill should extend beyond the site in an uncontrolled manner. The Task Force recommends, therefore, that 40 CFR Part 112 be amended to require inclusion of specific contingency plans in every facility's SPCC Plan and detailed contingency planning criteria be incorporated in Part 112.

The Task Force has examined standards and regulations related to oil storage tanks and facilities (see Sections 2.3 and 2.4 of this report), and has concluded that the SPCC regulations may be strengthened by referencing or including certain portions of other regulations. A general examination and comparison of such regulations by the Task Force has identified several relevant provisions. For example, OSHA requires hydrostatic testing of above-ground storage tanks (29 CFR 1910.106), and DOT's Office of Pipeline Safety (OPS) mandates cathodic protection for certain facilities covered under its regulations (49 CFR 195.242). The Task Force recommends that a thorough study of other related regulations be undertaken, and that certain applicable portions of such regulations be considered for strengthening the SPCC regulations.

Finally, the Task Force recommends many specific changes to the language included in 40 CFR Part 112. An important change necessary to strengthen the language of Part 112 is to replace the word "should" in most cases with the word "shall" or "must." For example, 40 CFR 112.7 delineates "Guidelines for the Preparation and Implementation of a Spill Prevention Control and Countermeasure Plan" and includes paragraph (c) which states, in part, "...equipment to prevent discharged oil from reaching a navigable water course should be provided." A language change in paragraph (c) would facilitate the implementation of a critical element in spill prevention and countermeasures. The Task Force also determined that the stringency of application of the regulatory changes should be modifed by the size of the facility. Examples of these changes are in Exhibit 2-1.

In addition, the Task Force recommends that a clarification of, and certain amendments to, relevant definitions in the existing regulations be considered. For example, the definition of "oil" found in Part 112 may be inconsistent with that found in Part 110, which defines oil of any kind and therefore requires amendment. The lack of separate definitions for "storage tank" and "breakout tank" in the SPCC regulations has proved to be troublesome; breakout tanks are occasionally used for temporary storage. Closer scrutiny of the regulations will undoubtedly reveal additional inconsistencies, and will illustrate the need to coordinate and harmonize definitional terms with other regulations and programs.

Further revisions of the language in 40 CFR Part 112 should decrease inconsistencies in interpretation between EPA regions, and will decrease the burdens on SPCC inspectors and On-Scene Coordinators (OSCs) in explaining the requirements and implications of the regulations to the regulated community. Revisions will improve compliance with the regulations, reduce the number of reportable oil releases, and reduce the potential for releases to cause serious public health or environmental harm. Language in these regulations should request facility owners and operators to carefully consider pertinent physical surroundings (i.e., wetlands, drinking water supplies, tidal areas, etc.) in the preparation of a SPCC Plan.

The Task Force also recommends consideration of expanding Part 112 to include abandoned oil wells and abandoned or "mothballed" facilities. Chronic discharges or leaks from old stripper wells, such as those found in the Allegheny forest of Pennsylvania, are not currently addressed in the regulations, and could be covered by addition of a new section 112.8.

2.1.4 Recommendations Applicable to 40 CFR Part 113

In 40 CFR Part 113, liability limits are established for small onshore oil storage facilities with fixed capacities of 1,000 barrels or less. Part 113 was promulgated, pursuant to section 311 (f)(2) of the CWA, on September 13, 1973 (38 FR 25440). Public Law 95-217, enacted on December 27, 1977, added a new subsection (q) to section 311 of the CWA. Under that subsection, the President is authorized to establish, with respect to any class or category of onshore or offshore facilities, a maximum limit of liability under subsections (f)(2) and (3) of section 311. The subsection prescribes that the liability limits so established are to be less than $50,000,000 but not less than $8,000,000. (All liability limits specified in Part 113 are less than $8,000,000.) Because of the enactment of Public Law 95-217, Part 113 is no longer valid. The Task Force recommends that Part 113 be deleted. Should it be necessary to implement subsection (q), taking into account, among other appropriate considerations, current remediation costs, any necessary delegations of authority from the President should be sought.

2.1.5 Recommendations Applicable to 40 CFR Part 114

In 40 CFR Part 114, civil penalties are established for violations of the oil spill regulations and a maximum fine of $5,000 is prescribed for each day such a violation continues. The Task Force recommends a review and interpretation of this part, as well as an examination of the history of the application of this statutory limit to determine if such a civil penalty is appropriate or if, in light of the enforcement history, Part 114 might be modified to encourage compliance. The Task Force also recommends that a formal penalty policy be developed by EPA in order to reduce Regional inconsistencies in penalty assessment.

EXHIBIT 2-1. RECOMMENDED MODIFICATIONS TO THE SPCC REGULATIONS (40 CFR PART 112)

MAJOR RECOMMENDATION	AGGREGATE STORAGE SIZE[1]	RATIONALE	PROCEDURAL ISSUES/COMMENTS
o Change many of the "should"s to "shall"s as appropriate (112.3-112.7).	Vary by size	These changes to the regulations will require certain practices rather than only encouraging them.	The public comment (review) period will inform the Agency of substantial problems with any specific requirement.
For example:		These tests, sensors, and protective devices follow good practices that should be in place at facilities complying with trade standards.	Prescriptive requirements are performance oriented, and require more in-depth review. Older facilities may need time to comply with the new standard. These matters may need further study and the development of a new training manual.
· Require integrity testing	A		
· Require level sensors	M/L		
· Require cathodic protection	M/L		
o Examples of the following "should"s to be retained:	A		. . .
· 112.7(e)(v)	A	Natural hydraulic flow should be used, but if it is not, the "should"s in this section need to be "shall"s.	. . .
· 112.7(e)(7)(xii)	A	Redundancy measures should vary with hazard potential.	. . .
· 112.7(e)(2)(xi)	A	It may be necessary to locate some of these facilities on a floodplain.	. . .
· 112.7(e)(9)(i)	A	It may not always be possible to fence a facility.	. . .

EXHIBIT 2-1. RECOMMENDED MODIFICATIONS TO THE SPCC REGULATIONS (40 CFR PART 112)

	MAJOR RECOMMENDATION	AGGREGATE STORAGE SIZE[1]	RATIONALE	PROCEDURAL ISSUES/COMMENTS
o	Reference specific minimum tank standards to be met, such as API, ASTM, and others as appropriate.	-	These are minimum protection consensus or industry standards. These standards are also cited by related Federal and State regulation.	Evidence of standards compliance should be in an SPCC Plan to allow an inspector to review and critique the material.
	For example:			
	- API 650	M/L		
	- ANSI 31.3	M/L		
	- NFPA 30	A		
o	Relocated tanks, piping, etc. must meet the same standards as new tanks, piping, etc. The equipment must be compatible with the existing facility.	A	There is no rationale for permitting a tank to be dismantled and reconstructed without meeting the same standards as a new tank. Substandard materials or construction would be prohibited.	Evidence of the dismantling and reconstruction, with associated tests, should be required to be displayed in the SPCC Plan.
o	Define and distinguish between large-, medium-, and small-capacity facilities. Define and provide for specific detailed measurements for large-capacity facility SPCC Plans.	-	Large-capacity facilities have a greater potential for causing spills and subsequent environmental damage.	Generally, larger companies will own and maintain the large-capacity facilities, but "Mom-and-Pop" facilities that are large have the same need to be checked because the spill potential is large for large facilities, regardless of the ownership status.
o	Require a facility to review its SPCC Plan every 2 years.	L	Reviewing a SPCC Plan ensures that "good engineering practices" are followed through a reexamination of the facility, the relevant technology, and applicable procedures.	The current standard is three years and may be too lax for large-capacity facilities.

EXHIBIT 2-1. RECOMMENDED MODIFICATIONS TO THE SPCC REGULATIONS (40 CFR PART 112)

MAJOR RECOMMENDATION	AGGREGATE STORAGE SIZE[1]	RATIONALE	PROCEDURAL ISSUES/COMMENTS
o A new facility, a facility that changes ownership, or a "moth-balled" facility should be in full compliance prior to operating.	A	There is no logical rationale for a new facility not to be in compliance.	The 12-month grace period to comply would be deleted, and the 6-month grace period for amended SPCC Plans should be eliminated.
o If a facility cannot fully meet the requirements of a "prevention/control" plan and will therefore depend more on the "contingency" plan, the owner or operator will notify the Regional Administrator prior to operations and submit the SPCC Plan at the request of the Regional Administrator. Notification must include the name and location of the facility, as well as a description of available personnel, equipment, and financial resources.	A	Facilities that cannot adequately activate a "prevention/control" plan deserve special consideration. This notice will serve as a "red flag" to the Regional Administrator.	These would be candidates for a high priority list of facilities to inspect, and EPA would be proactive on these facilities.
o Substantial or significant alterations to the facility requires an amendment to the Plan. A list of key contacts must be updated, as necessary, without PE certification.	A	Such a requirement is now stated but needs to be more explicit. No such requirement exists for personnel changes.	"Substantial or significant alterations" must be defined.

EXHIBIT 2 RECOMMENDED MODIFICATIONS TO THE SPCC REGULATIONS (40 CFR PART 112)

MAJOR RECOMMENDATION	AGGREGATE STORAGE SIZE[1]	RATIONALE	PROCEDURAL ISSUES/COMMENTS
SPCC Plan section on Contingency Planning:			
· Modify language to emphasize that (1) prevention, (2) control, and (3) contingency measures are all to be addressed in the SPCC Plan.	A	This stresses that all phases of SPCC should be operative. All three activities are part of the necessary steps to prevent oil from reaching navigable waters or the adjoining shoreline of the U.S., or to deal with such spills.	Criteria need to be included in 40 40 CFR 112 specifically for an oil spill contingency plan.
· 40 CFR 109 (dealing with criteria for state, local, and regional oil removal contingency plans should be updated and improved to reflect Title III and be incorporated into the NCP.		Currently, Part 109 is not appropriate for SPCC facilities and needs to be incorporated into the NCP for consistency purposes. The regulation is out of date; coordination of the CEQ with the NCP is cited.	Linking 40 CFR 109 and SARA Title III should be considered. Instead of referencing 40 CFR 109, 40 CFR 112 will require contingency plans for all SPCC facilities.
All facilities shall prepare a contingency plan to deal with spills that may threaten or affect navigable waters or the adjoining shoreline of the U.S., and such plans, if praticable, should be coordinated with local plans under Title III.	A	Contingency planning is integral to protecting our navigable waters. This requires pre-planning for all facilities for a major spill event. Title III has established a local planning structure to deal with releases of hazardous substances. Coordination with Title III should help avoid duplication of effort.	This may encourage responsible parties to be more aware of needed offsite improvements to protect navigable waters.

EXHIBIT 2-1. RECOMMENDED MODIFICATIONS TO THE SPCC REGULATIONS (40 CFR PART 112)

MAJOR RECOMMENDATION	AGGREGATE STORAGE SIZE^1	RATIONALE	PROCEDURAL ISSUES/COMMENTS
o Amend Part 112 to require that the certifying PE of a SPCC Plan certify visit and examine the site. The PE must also certify that testing results are correct and that the control and contingency plan is reasonable. (At small- and medium-sized-facilities, the PE should study and be familiar with the facility, but a visit is not mandatory). A PE need not be licensed in the same State as the facility.	L	The role of the PE is to check the adequacy of facility prevention, control, and contingency plans. The PE must, therefore, be familiar with the particulars of each site.	The PE must also be capable of reviewing the Plan.
o In addition to spill history, amend Part 112 to require regular and periodic self-inspections of facilities by the owner or operator, regardless of spill history, but based on spill potential. The SPCC Plan at the facility should be accompanied by a log of spill events maintained in a separate file or addendum which would be available to the SPCC inspector upon request.	A	Some self-inspections will require adjustments. Logging of spills will require tracking of reportable events.	The PE or the SPCC inspector will have the opportunity to review self-inspections, results, and spill histories for each facility, within one document.

EXHIBIT 2-1. RECOMMENDED MODIFICATIONS TO THE SPCC REGULATIONS (40 CFR PART 112)

MAJOR RECOMMENDATION	AGGREGATE STORAGE SIZE[1]	RATIONALE	PROCEDURAL ISSUES/COMMENTS
Preamble and Definitions to SPCC Regulations			
o Cite, by reference to 40 CFR 110.1, the definition of "navigable waters." Further define and clarify conditions for facilities that may be near navigable waters and thereby subject to SPCC requirements.		Section 110.1 is the most recent update to oil spill regulation. For ease of understanding, uniformity should be maintained.	The conditions under which a facility is subject to planning may need clarification. Appropriate language may be contained in 40 CFR 112.2 (NPDES program).
o Preamble discussion should include: · Ecologically sensitive areas · Facilities not subject to SPCC · Facilities subject to SPCC · Discussion of SPCC Plan · Proximity to drinking water supplies · Proximity to major waterway		In the past, SPCC planning requirements and the applicability of the SPCC regulations have been unclear.	Examples should be provided in the Preamble to a rule, as well as in the Technical Background Document and public docket.
o Define: · Breakout tank · Bulk storage tank · Fail-safe engineered · Large-capacity facility · Medium-capacity facility · Small-capacity facility · Navigable waters · [illegible]		Clarification of these terms will assist in the preparation of adequate SPCC Plans. (Examples are: the difference between an in-line breakout tank and a breakout tank used as a storage tank needs to be defined; SPCC Plans for large-capacity facilities should contain more stringent inspection procedures than plans for small-capacity facilities, because of the magnitudes of difference in spill potential.)	Examples of each significant term in the Preamble, public docket, and Technical Background Document would be essential in answering implementation questions, and in the preparation of Questions and Answers for training purposes.

EXHIBIT 2-1. RECOMMENDED MODIFICATIONS TO THE SPCC REGULATIONS (40 CFR PART 112)

MAJOR RECOMMENDATION	AGGREGATE STORAGE SIZE[1]	RATIONALE	PROCEDURAL ISSUES/COMMENTS
o Define (continued): · SPCC Plan · Contingency Plan · Substantial or significant alterations in the volume, storage, or manner of handling oil			

[1] S - Small-capacity facility with < 100,000 gallons of oil storage
M - Medium-capacity facility with 100,000-1,000,000 gallons of oil storage
L - Large-capacity facility with > 1,000,000 gallons of oil storage
A - All facilities

2.2 TANK STANDARDS

At present, the SPCC regulations do not require adherence to specific standards with respect to above-ground storage tanks for petroleum products. The industry has been essentially self-regulating, and, in general, has followed self-imposed standards. Such standards have been generated, for the most part, by the American Society of Mechanical Engineers (ASME), the American Petroleum Institute (API), the Underwriters Laboratories, Inc. (UL), the National Fire Protection Association (NFPA), the American National Standards Institute (ANSI), and the National Association of Corrosion Engineers (NACE).

EPA and the U.S. Coast Guard currently administer regulations on buried and above-ground storage tanks. The Task Force decided that a review of these and other existing tank standards would assist in determining the feasibility of instituting or mandating specific standards for above-ground storage tanks under the SPCC program.

The Task Force conducted a survey of industrial and scientific standards as illustrated in Exhibit 2-2. Key areas that were compared include:

- Materials specifications;
- Welding requirements;
- Pressure testing prior to service;
- Over-pressure and vacuum relief requirements;
- Design specifications (sizing); and
- Siting specifications.

In addition, the Task Force reviewed in-service inspections and return-to-service requirements. Each of these key areas appears to be addressed by at least one standard.

2.2.1 Recommendations for Tank Standards

The Task Force recommends, based on this survey, that all new or rebuilt above-ground storage tanks at new facilities be required to comply with the applicable industrial and scientific codes and standards presented in Exhibit 2-2. These standards, excluding the API Inspection Guide, should be incorporated generically (i.e., without regard to date) and by reference in the appropriate SPCC regulations. The Task Force further recommends that these regulations also apply to all piping, valves, or fittings, and all other apparatus and auxiliary equipment that are part of above-ground tank systems. RCRA, the U.S. Coast Guard, and OSHA presently reference many of these same standards in their regulations.

EXHIBIT 2-2. SURVEY OF STORAGE TANK CODES AND STANDARDS

	PIPING CODE	PRESSURE VESSEL CODE	STORAGE TANK CODES AND STANDARDS										
KEY AREAS/ QUESTIONS COVERED BY CODE OR STANDARD	ANSI B31.3	ASME SECTION VIII	API 650	API 620	API SERIES 12				API INSPECTION CODE	UL 58	UL 142	NFPA 30	ANSI B96.1
					12B	12D	12F	12R1					
Organization *	I	I	I	I	I	I	I	I	I	P	P	I	I
Material Specifications/ Requirements	X	X	X	X	X	X	X			X	X		X
Welding Specifications/ Requirements	X	X	X	X		X							X
Preservice Pressure Testing Requirements	X	X	X	X		X	X			X	X	X	X
Overpressure/ Vacuum Relief Requirements	X	X	X	X	X	X	X	X		X	X	X	X
Basic Sizing Rules	X	X	X	X	X	X	X			X	X		X
Siting Requirements	X		X	X				X				X	X
Leak Detection Guidance									X			X	
In-Service Inspection Requirements									X				
Return To Service Inspection/ Test Requirements									X			X	

* P - Private; I - Industry

2.3 RELATED FEDERAL REGULATIONS

The Task Force has identified regulations from five Federal programs containing provisions that may be considered by the Agency for purposes of modifying existing SPCC regulations; a discussion of these regulations follows.

2.3.1 Resource Conservation and Recovery Act Regulations

SPCC-regulated tanks may also be regulated by Resource Conservation and Recovery Act (RCRA) under 40 CFR Parts 260-271 if hazardous wastes meeting the definition of "oil" are stored. The RCRA program identifies two categories of regulated facilities that are each subject to different Parts of 40 CFR.

(1) Facilities that have filed RCRA Part A applications and have been designated as "interim status facilities," and facilities claiming generator status and storing waste in tanks for up to 90 days, are regulated under 40 CFR Part 265.

(2) Facilities that have successfully received RCRA permits are regulated under 40 CFR Part 264.

Parts 264 and 265 are similar with respect to preparedness and prevention requirements, and both contain Subpart J sections that specifically address tanks.

At each site, the owner/operator must prepare a written plan that includes a schedule for managing hazardous wastes at the site. The plan includes a written schedule for inspecting monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment that is important to preventing, detecting or responding to environmental or human health hazards.

The plan includes a response training program, which is required to be taken by key personnel. In all cases, this plan must be filed on-site and must be available to inspectors. Notification of local emergency teams is also required. Facilities regulated under Part 264 must submit such plans with the permit application to Federal and State officials, as well as local emergency teams. The regulations encourage owner/operators to use the SPCC Plan as a part of the RCRA permit development process.

In addition to the plan, owner/operators must conduct regular inspections for malfunctions and deterioration of containers and equipment, operator errors, and leaks or discharges that may cause or lead to releases of hazardous waste constituents or threats to human health. The frequency of inspections may vary for different equipment or devices, based on the probability of an environmental or human health incident occurring as a result of failure, malfunction, or operator error.

In addition to these general requirements, hazardous wastes stored in tanks are covered by tank standards found at 40 CFR 264 Subpart J and 40 CFR 265 Subpart J. When the RCRA permit application (Part B) is submitted, it must be accompanied by a certification from a registered professional engineer (RPE) attesting to the integrity of the tank system, including ancillary equipment. Certification includes design standards, the age of the tank, a description of corrosion protection, and the results of tank integrity examinations.

Tank systems must be provided with one or more of the following secondary containment devices: an external liner, a vault, a double-walled tank, or equivalent devices approved by the Regional Administrator (RA) that satisfy minimum requirements for composition, construction and leak detection.

Since many of the facilities subject to SPCC regulations are also subject to RCRA, compatibility between the SPCC and RCRA programs would be beneficial.

2.3.2 U.S. Coast Guard Regulations

U.S. Coast Guard regulations for facilities capable of transferring oil in bulk to or from any vessel or public vessel with a capacity of 250 or more barrels (approximately 10,500 gallons or more) of oil are found in 33 CFR Part 154. Although the SPCC program does not cover transportation-related facilities, the Coast Guard requirements described below may be adopted and modified for purposes of the SPCC program.

The facility operator must submit an operations manual and a letter of intent to operate a facility not less than 60 days prior to commencement of the intended operations. A follow-up letter of adequacy must be issued by the U.S. Coast Guard prior to operations. If amendments to the operations manual are requested by the Coast Guard, such amendments must be submitted within 14 days of the request. Changes to personnel and telephone lists require an amendment and notification to the Coast Guard, but not prior approval from the Coast Guard.

Equipment requirements for hose assemblies (including specifics for burst pressure), loading arms, closure, monitoring devices, and small discharge containment are provided in 33 CFR Parts 154.500-154.570.

The transfer of oil on navigable waters to, from, or within vessels with a capacity of 250 or more barrels of oil is discussed in 33 CFR Part 156. Non-compliance with these regulations can result in immediate suspension of operations. Prior to oil transfers between vessels, or between vessels and facilities, a declaration of inspection form must be completed by a "person in charge" of the oil transfer for the vessel and for the facility operation. Specific operating requirements include the hydrostatic testing of hoses in the event of suspected problems. Inspections of facilities are normally performed annually; vessels are normally inspected annually or as part of the biennial and mid-period inspections for vessels. Any discharge of oil or hazardous material into the water must be reported immediately to the National Response Center (NRC).

Facilities are required to establish emergency shutdown procedures, appropriate communication systems, and provide adequate lighting. The "person in charge" of the oil transfer operation for the vessel or facility must be fully qualified through prior experience and training to serve in that role.

2.3.3 Occupational Safety and Health Act Regulations

OSHA enforces regulations related to employee safety and equipment specifications at oil facilities as set forth in 29 CFR Part 1910. Some of these requirements may be incorporated into modifications to the SPCC program.

Tanks must be spaced no less than 3 feet apart, and as much as 20 feet apart if used to store certain hazardous materials. Normal venting, emergency venting, and vent piping must be adequate. Supports and foundations must be composed of materials that are fire-resistant for a minimum of two hours. Dikes must be capable of holding the full contents of the largest tank under protection. If a dike is composed of earthen material and is greater than three feet in height, the top portion of the dike must be at least two feet in width. The walls of diked areas are restricted to an average height of six feet above the interior grade; however, variances for higher dikes may be obtained from OSHA.

Periodic inspections may be performed by OSHA officials in order to ensure tank compliance, relevant flood emergency procedures, and employee awareness of operations. In the past five years, OSHA inspectors have cited over 130 facilities with violations of its combustibles and flammable liquids codes. Currently, training is not required unless a fire brigade is present at a facility. Interim final rules at 29 CFR 1910.120 (51 FR 45654, 45664, and 45665) require 40 hours of training of personnel involved with hazardous waste operations. Structure resistance to damage caused by earthquakes, in appropriate areas, is to be considered in facility plans, as is the prevention of fires through the elimination or control of ignition sources. Employee emergency plans are to be incorporated into the safety and health program maintained by each facility. The regulations specify the design, application, and use of signs or symbols.

Testing of tanks (including hydrostatic testing) for strength and tightness must be conducted on all tanks prior to use, but is not required more than once. ASME, API, or UL compliance must be marked on each tank. Conformance with the ANSI B31 and NFPA standards for piping, valves, and fittings is strongly recommended to illustrate compliance.

2.3.4 Office of Pipeline Safety Regulations

The OPS, under DOT, enforces regulations contained in 49 CFR Part 195 as authorized by the Hazardous Liquid Pipeline Safety Act (HLPSA) of 1979, as amended. These regulations are applicable to pipeline facilities and the transportation of petroleum, petroleum products, and anhydrous ammonia associated with those facilities in or affecting interstate or foreign commerce. Breakout tanks designed to relieve surge pressures in pipelines and for re-injection of hazardous liquids into pipeline systems are covered by the regulations when associated with a pipeline system used in interstate or foreign commerce. The majority of petroleum storage tanks in the United States are not subject to the regulations developed under authority of the HLPSA.

Regulations in 49 CFR Part 195 address design requirements, construction specifications, testing, operations, and maintenance of covered pipelines and facilities, and provide for inspections of these facilities. Certain regulations may be applicable to the design, construction, operation and maintenance of aboveground storage tanks and, where current SPCC regulations do not address these areas, the regulations may be incorporated and adapted to this purpose.

2.3.5 Minerals Management Service Regulations

The Minerals Management Service (MMS), of the U.S. DOI, regulates all operations conducted under leasing agreements in outer continental shelf areas. The Director of the MMS has authority to issue orders and field rules, as necessary, in order to prevent harm or damage to, or waste of, any natural resource, any life, property, or the marine, coastal, or human environment. The "best available and safest technologies," as determined to be economically feasible by the Director, are to be used by all lessors. Periodic on-site inspections of facilities may be conducted by MMS personnel at any time without prior notice to ensure compliance with applicable regulations.

In the enforcement of safety, environmental, and conservation laws and regulations, the Secretary of the Interior is authorized by the Outer Continental Shelf Lands Act, as amended, to cooperate with other relevant departments and agencies of the Federal government and of affected States. The broad authority provided to the MMS should be considered in the implementation of changes recommended for the SPCC program.

It should be noted that the Bureau of Land Management (BLM) regulates and inspects tanks located on lands for which the BLM is responsible. It is estimated that this could amount to 30,000 tanks.

2.3.6 Office of Underground Storage Tank Regulations

EPA's Office of Underground Storage Tanks (OUST) has proposed regulations at 52 FR 12662, 52 FR 12786, and 52 FR 12853 (April 17, 1987) regarding technical requirements for underground storage tanks (USTs), financial responsibility for facilities with USTs containing petroleum, and State program approval, respectively. These regulations are proposed under authority of the Solid Waste Disposal Act of 1970, as amended by the Resource Conservation and Recovery Act of 1976. The technical requirements proposed for USTs are comprehensive; with the exception of small tanks and other special circumstances, requirements are provided for tank design, installation and notification requirements, release detection, release reporting and investigation, corrective action requirements, and other aspects of the installation, use, and maintenance of USTs in petroleum and hazardous substance service.

These proposed regulations, which are expected to be finalized in the near future, will provide a base for the regulation of USTs, and will clarify determinations of financial responsibilities for applicable tanks and facilities. Several aspects of these regulations are applicable to above-ground storage tanks, and should be carefully analyzed for inclusion in revisions to the SPCC regulations.

2.3.7 Recommendations Based on Related Federal Regulations

Exhibit 2-3 provides a comparison of the related Federal regulations that were considered by the Task Force. Based on the review of such regulations, the Task Force makes the following recommendations:

- The SPCC Plan must include a written schedule for internal inspections. The schedule will include procedures for minimum frequencies of tank inspections and secondary containment systems.
- Corrosion and cathodic protection systems, where required, must be installed prior to operations and reviewed at least six months after installation and annually thereafter.
- Minimum tank integrity standards, based on specific industry standards, must be followed and proof of compliance through certification must be provided.
- All new employees of a facility must complete site-specific operations and emergency response training refresher courses annually thereafter.
- New large facilities must file a "letter of intent" prior to operations.
- A "person or persons in charge" or a "spill coordinator" must be designated to plan and oversee emergency actions. This person should interact with the LEPCs as a facility coordinator. A list of such persons at the facility must be maintained.
- The following aspects of selected OSHA requirements, with allowance for variances as outlined in 29 CFR Part 1905, should be considered for incorporation by reference, including:
    - Dike heights are to be restricted to an average of six feet; earthen dike must be greater than two feet in width if more than three feet in height (variances may be granted by OSHA provided that the same degree of protection to workers is maintained);

  - Dikes must be adequate to hold the full contents of the largest tank, and be tested prior to use. Allowances for freeboard must be included;
  - Tanks are to be placed apart from one another at a minimum of three feet, or up to 20 feet if other hazardous materials are present;
  - Emergency venting, and a means to contain non-volatile vented material, is required;
  - Fire resistant supports must be used and should specify NFPA 704 and indicate the name of the substances stored;
  - Signs or symbols are to be used;
  - Hydrostatic testing (or 100 percent radiographic testing of welded or riveted areas) of new, refurbished, or relocated tanks and ancillary equipment is required; and
  - Tank strength must be evidenced by the presence of an ASME code stamp, an API monogram, or the label of the UL, on tanks, or equivalent, as outlined in 29 CFR 1910.106. Such evidence must be described in the associated SPCC Plan.

- Memoranda of Understanding (MOUs) should be established between EPA and MMS, OPS, USCG, the Office of Hazardous Materials Transportation (OHMT), OSHA, and other entities, as appropriate.
- UST regulations, particularly regarding leak detection, should be reviewed for those applicable to above-ground storage tanks, and incorporated into SPCC regulations.
- Upon finalization of UST regulations, OUST and SPCC regulations of underground storage tanks should be coordinated to ensure consistency and to avoid overlap and duplication.

EXHIBIT 2-3. RELATED FEDERAL REGULATIONS

	Resource Conservation and Recovery Act	Coast Guard	Occupational Safety and Health Act	Office of Pipeline Safety	Minerals Management Services	Office of Underground Storage Tanks
Applicability	Facilitates that generate, treat, store, or dispose of hazardous wastes as defined in 40 CFR 261.3.	Facilities capable of transferring oil in bulk to or from any vessel with a capacity of 250 or more barrels of oil as outlined in 33 CFR 154; transfer of oil on navigable waters to, from, or within vessels with 250 or more barrels of oil as outlined in 33 CFR 156.	Occupational settings where flammable and combustible liquids are present as outlined in 29 CFR 1910.106.	Pipeline facilities and the transportation of hazardous liquids by pipeline in interstate and foreign commerce as outlined in 49 CFR 195.	All operations conducted under a lease issued or maintained at a facility on the outer continental shelf.	Any one or combination of t[illegible], including attached underground pipes, 10 percent or more beneath the surface. Certain small tanks, residential systems and surface impoundments are excluded.
Approval Requirements and Permits	· EPA identification number. · RCRA operating permit. · Facility transfer of ownership requires notification of RCRA requirements to new owner by previous owner.	· Letter of intent submitted 60 days prior to operations. · Operations manual, which is submitted with the letter of intent, to be reviewed and approved by USCG. · Letter of adequacy issued by USCG prior to operations. · Noncompliance of 33. · CFR 156 can result in immediate suspension of operations.			· Exploration plan or development and production plan submitted prior to operations. · Environmental Report submitted prior to operations. · Noncompliance can result in immediate suspension of operations. · Study program conducted by lessee, if requested during suspension.	Notification of tank existence or installation is required.

EXHIBIT 2-7. RELATED FEDERAL REGULATIONS - (Continued)

	Resource Conservation and Recovery Act	Coast Guard	Occupational Safety and Health Act	Office of Pipeline Safety	Minerals Management Services	Office of Underground Storage Tanks
Tank and Ancillary Equipment Integrity	Certified by PE to include design standards, tank age, corrosion protection, leak test results, and cathodic protection. · Certification of integrity. Submitted with RCRA permit application. · Interim status facilities must keep certification on file.	· Requirements for hose assemblies, burst pressure, loading arms, closure, monitoring devices, and small discharge containment.	· Tanks spaced 3-20 feet apart at minimum. · Venting. · Fire resistant supports.	· Specific minimum requirements for design, construction of pipes, valves and pumps. · 12-inch underground pipe clearance.	· Use of "best available and safest technologies."	Proper installation and design practices, corrosion protection, filling practices, repair limitations, closure requirements, leak detection, reporting requirements, corrective action.
Tank and Ancillary Equipment Standards	· API and NACE recommended as guidelines.	· ANSI B16.5, B16.24, B31.3 and B31.3a recommended as guidelines.	API No. 620 and 2000, ASME Boiler and Pressure Code, or UL standards, are suggested. ANSI B31 is recommended for piping.	API, ASME, MSS, ANSI, and ASTM standards are cited and incorporated in regulations.		National consensus codes of practice (NFPA, ANSI, ASME, API).
Containment	· Secondary containment with proper composition material, adequate size to contain 100% tank capacity, base support, and sloped-base. · Optional secondary devices such as liners, vaults, and double-walled tanks are recommended.		· Dikes must be able to contain 100% tank capacity. · Dike walls must average less than 6 feet in height. · Earthen dikes more than 3 feet in height must be 2 feet in width at top.		· Curbs, gutters, drip pans, and drains shall be installed in deck areas to collect all contaminants not authorized for discharge. · Artificial islands, such as the Alaskan North Slope, must have an impervious berm.	

EXHIBIT 2-3. RELATED FEDERAL REGULATIONS - (Continued)

	Resource Conservation and Recovery Act	Coast Guard	Occupational Safety and Health Act	Office of Pipeline Safety	Minerals Management Services	Office of Underground Storage Tanks
nspections and Testing	· Inspection schedule submitted with RCRA permit application. · Facility inspections conducted weekly. · Tank system inspections conducted daily. · Testing of emergency equipment. · Annual inspection of cathodic prevention.	· Declaration of inspection completed prior to oil transfer. · Facility inspections performed annually · Hydrostatic testing of hosing required.	· One-time testing (including hydrostatic) for strength and tightness. · ASME, API, or UL compliance must be marked on tank prior to use. · Periodic OSHA inspections.	· Pipes must be tested during construction. · Cathodic protection must be tested by test leads. · Required hydrostatic testing. · Annual facility pipeline system inspections. · Biennial inspection of valves.	· Annual onsite facility inspection. · Periodic onsite inspections without prior notice. · Monitoring of environmental impacts. · Corrosion testing of wells. · Operators must self-inspect facilities daily.	· Inspection on installation can be conducted. · Post-installation integrity test. · Internal inspections, where feasible. · Various kinds of testing can be done.
ak Prevention and Detection	· Secondary containment leak detection certified by PE in RCRA permit application. Interim status facilities must keep certification on file.	Hydrostatic testing of hoses.		· Each component of a pipeline system must be provided with corrosion protection.	· Use of blowout preventers. · Frequent pressure testing of well casing.	· Corrosion protection. · Soil gas monitoring. · Water table monitoring. · In-tank monitoring. · Interception well monitoring.
ontingency Planning	· 24-hour surveillance system, or controlled access barrier, required. · "Danger" signs posted.	· Emergency procedures delineated in the facility Operations Manual (33 CFR 154.310).		· Maintain liaison with local authorities. · Maintain current maps of system. · Pipeline markers as required.	· Environmental protection equipment. · Safety equipment. · Contingency plans for drill site and associated onshore activities.	

EXHIBIT 2-3. RELATED FEDERAL REGULATIONS - (Continued)

	Resource Conservation and Recovery Act	Coast Guard	Occupational Safety and Health Act	Office of Pipeline Safety	Minerals Management Services	Office of Underground Storage Tanks
Training Programs	· Operations and emergency response training required of personnel. · Annual review by personnel required. · Program description submitted with RCRA permit application.	· "Person in charge" of facility must qualify through unspecified prior experience and training.	· For fire brigade only. · Interim final regulations require 40 hours of personnel training for hazardous waste operations.	· Training program for all personnel to instruct operations and emergency procedures.		
Emergency Preparedness	· Contingency plan filed with State and local authorities, and submitted with RCRA permit application. · Assigned spill coordinators.	· Shutdown procedures · Appropriate communication system · Adequate lighting	· Emergency venting. · Earthquake resistancy. · Elimination or control of ignition sources. · Preparedness plans incorporated in facility safety and health program. · Sign use.	· Manual for emergency procedures to be reviewed annually. · Shutdown procedures. · Post-accident review of employee activities.	· "Lessee shall take all steps necessary to prevent accidents and fires."	
Spill Reporting Requirements	· Immediate report to NRC. · Follow-up report to NRC within 15 days. · Notice to Regional Administrator. · Follow-up report to Regional Administrator within 30 days certifying repair.	· Immediate report to USCG.		· Immediate telephone report to DOT, followed by a written report within 30 days.	· Report of spill to MMS District Supervisor. · Operation malfunction report to Director within 24 hours. · Spills of greater than 1 barrel must be reported immediately.	· Reporting of any suspected release when discovered.

2.4 RELATED STATE REGULATIONS

The Task Force has examined several State programs that supplement the Federal SPCC program. Exhibit 2-4 describes Federal and State requirements for SPCC Plans or related programs for above-ground storage tanks. It should be stressed that Exhibit 2-4 is not intended to be a comprehensive review of State regulations, nor are the States listed intended to represent "typical" or exemplary examples of State regulatory systems. Based on information from EPA regional staff, approximately nine States appear to have some requirements for SPCC Plans. Key points concerning State selected requirements are discussed below.

Many States have adopted requirements that are closely modeled on Federal SPCC requirements. In some cases, States have taken Federal regulations virtually verbatim. In other cases, States have taken Federal requirements and added new requirements or made guidelines into mandatory requirements. Some States have added new requirements, such as licensing, specific tank standards, and location specifications.

2.4.1 Recommendations Based on Related State Regulations

On the basis of its analysis, the Task Force makes the following recommendations:

- State requirements for the consideration of ecological or location factors should be examined closely to determine whether such provisions are appropriate for the Federal program.
- States such as New Jersey or New York that have programs that are more extensive than the Federal program should be targeted for further study to determine if they can provide useful models and implementation issues.

- The implications and utility of the Federal program adopting typical State requirements, such as requiring plans to be submitted before a spill has occurred, should be explored. It may be possible to defer notification by a facility, and review of its SPCC Plan, to the appropriate State agency. The Task Force does not wish to impose duplicate reporting.

EXHIBIT 2-4. Federal and Selected State Requirements for Spill Prevention and Response Plans for Above Ground Tanks

	Applicability	Technical Certification Requirements	Submittal and Approval Requirements	Required Elements of Plan	Tank Standards	Permits, Licenses, Registration	Special Environmental Considerations
SPCC	Non-transportation related facilities that could reasonably discharge oil into/upon navigable waters of U.S., with an above ground capacity of 1320 gallons total or in excess of 660 gallons per tank.	Plan must be certified by a registered professional engineer.	Plan must be submitted to EPA if a spill of more than 1000 gallons or two spills of any size have occurred within 12 months.	Plans must contain: o Spill history o Containment and Diversionary Structures (description of those at site); or o Part 109 Contingency Plan	Must indicate how facility conforms with guidelines provided. No mandatory standards.	None.	None.
Alaska	Oil treatment facilities with an effective storage capacity of 42,000 gallons or greater.	Plan must be "carefully thought-out" and prepared in accordance with accepted cleanup procedures.	Plan must be submitted to State authorities and approved prior to operation.	Plan must contain procedures for detection and clean up of a discharge.	No standards specified.	A facility may not operate unless a spill contingency plan has been approved by the department of Environmental Conservation. Contingency plans must be approved every year or if major changes occur in facility operation.	Plan must demonstrate knowledge of how climatic and locational factors will affect contingency planning.
Florida	Terminal facilities. No storage amount specified.	No requirements specified.	Plan must be approved by State authorities before a license is granted.	Plan must outline prevention, containment, and removal procedures and equipment available.	Applicable API and NFPA standards for above ground tanks. New tanks must maintain an impervious containment system and corrosion protection accordance with NACE standards. Existing tanks are not required to have an impervious containment system. Specific procedures and options are outlined for existing tanks.	Annual registration certificate required for operation. Fee.	None.

EXHIBIT 2-4 Federal and Selected State Requirements for Spill Prevention and Response Plans for Above Ground Tanks

	Applicability	Technical Certification Requirements	Submittal and Approval Requirements	Required Elements of Plan	Tank Standards	Permits, Licenses, Registration	Special Environmental Considerations
Maine	Oil terminal facilities with capacities of 21,000 gallons or greater.	No requirements specified.	Plan must be submitted to State authorities annually for approval.	Plan must contain several contingency plans that reflect different size spills.	No standards specified.	One-two year licenses required for operation.	None.
Maryland	Oil terminal facilities with total storage capacities of 126,000 gallons or greater. Oil storage facilities with capacities of 13,000 gallons or greater.	No requirements specified.	Plans must be submitted to State authorities as part of permit process.	Plan must include a contingency plan to deal with spills.	Applicable API and NFPA standards for tanks are required; procedures for diking, drainage and inspection are specified. Diking requirements may be waived if adequate alternative spill control plan exists.	Fees and license required for transfer of oil. Oil storage facilities must have a five year oil operations permit issued by the Water Resources Administration.	Nature of groundwater must be assessed. No construction on 100 year flood-plains or wetlands should occur unless a facility obtains a permit.
Michigan	Oil storage facilities that have on hand, at any one time, 40,000 gallons or greater or any facility with less than 40,000 gallons if the Water Resources commission of the Department of Natural Resources believes that facility should be subject to regulation.	The State Water Resources Commission may reject plans if they are judged to be "incomplete" or "inadequate".	Plan must be submitted to State authorities 30 days before facility operation begins.	Plan must include a description of prevention, containment, and clean-up plans.	No standards specified	No standards specified.	None

EXHIBIT 2-4. Federal and Selected State Requirements for Spill Prevention and Response Plans for Above Ground Tanks
(Continued)

	Applicability	Technical Certification Requirements	Submittal and Approval Requirements	Required Elements of Plan	Tank Standards	Permits, Licenses, Registration	Special Environmental Considerations
New Jersey	Major facilities with a total above and below ground storage capacity of 400,000 gallons or greater.	The construction of engineering works must be approved by a professional engineer certified in New Jersey; other operations do not require certification.	Plan must be submitted to State authorities and approved prior to the facility beginning operation.	Plan must contain a discussion of how the facility conforms with specified standards for containment.	SPCC drainage and containment standards pertain, but are mandated, not suggested. Tank standards are specified.	None.	Quality of ground water must be considered. For facilities in 100-year floodplains, must prove that provisions have been made to deal with possible spills or releases.
New York	Major facilities with a total above and below ground storage of 400,000 gallons or greater and petroleum storage facilities with a capacity of 1,100 gallons or greater.	No requirements specified.	Major facilities: plan must be submitted to State authorities as part of application for Letter of Certification.	Plan must contain: • Spill contingency plan information; • SPCC Plan; • Spill history.	Standards specified for containment and prevention. Specific API, NFPA, CAN standards for design, construction, and installation must be followed.	Small facilities must register with N.Y. D.E.C. Major facilities must be certified by N.Y. D.E.C. and licensed by N.Y. D.O.T. Fees.	Facilities on flood plains (as defined by State and local regulations) must be safeguarded against movement by flood waters.
Pennsylvania	Facilities that generate, store, treat, transport or dispose of hazardous wastes.	Developed in accordance with good engineering practices by "someone familiar with the day-to-day operations at the site."	Plan must be submitted for approval by State authorities.	Plan must contain: • SPCC plan (incorporated or as an appendix); • Contingency plan • Spill history • Inspection plans	Not specified	Permits required for large storage facilities (over 250,000 gallon capacity).	None.
South Dakota	Stationary storage tank systems. No amount specified.	None.	Certification by State required. Notification of installation required.	Plan must contain: • Release notification plan • Corrective action plans	In accordance with code of practice of nationally recognized association. All, NFPA installation standards specified.	None.	Proposed sites for new systems shall be assessed for background conditions.

2.5 CONTINGENCY PLANNING

The Task Force examined the relationship between contingency planning provisions in 40 CFR Part 109 and those of other EPA programs. This section presents findings and recommendations related to those provisions.

In 40 CFR 112.7(d)(1), the following reference to 40 CFR Part 109 is made:

> "When it is determined that the installation of structures or equipment listed in Section 112.7(c) to prevent discharged oil from reaching the navigable waters is not practicable from any onshore or offshore facility, the owner or operator should clearly demonstrate such impracticability and provide the following: (1) A strong oil spill contingency plan following the provision of 40 CFR Part 109".

Although Part 112 is intended for use by petroleum facility owners and operators in preparing facility-specific contingency plans, the guidelines in Part 109 establish criteria for the development of "State, local, and regional contingency plans by State and local governments" (40 CFR 109.3).

Other programs under CWA, RCRA, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and Title III of Superfund Amendments and Reauthorization Act (SARA) also contain contingency planning provisions. A side-by-side comparison of these contingency planning provisions is provided in Exhibit 2-5.

2.5.1 Recommendation to Contingency Plans

Based on the information in Exhibit 2-5, the Task Force makes the following recommendations:

- Every SPCC facility should be required to have an oil spill contingency plan, to be certified in the same manner as the remainder of the SPCC Plan;
- Detailed criteria addressing SPCC facility contingency plans should be directly provided in 40 CFR Part 112;
- Requirements similar to the contingency planning provisions contained in RCRA regulations should be considered in developing SPCC criteria;
- The provisions of 40 CFR Part 109 should be improved and incorporated into the NCP. Current provisions would need updating to reflect amendments to CWA, changes to the NCP, and coordination with the SARA Title III program;
- Further investigation of a tie-in between SPCC planning and LEPCs pursuant to SARA Title III should be investigated. This tie-in may promote increased knowledge by facility owners of the requirements of SPCC planning and SARA Title III.

EXHIBIT 2-5. SIDE-BY-SIDE COMPARISON OF PROVISIONS FOR CONTINGENCY PLANS

	40 CFR Part 109 Criteria for State, Local, and Regional Oil Removal Contingency Plans	SARA section 303 Comprehensive Emergency Response Plans	40 CFR sections 264.50-264.54 Contingency Planning Provisions	40 CFR Part 300 National Contingency Plan Planning and Coordination Provisions
Statutory authority	CWA	Title III of SARA	RCRA	CERCLA and CWA
Facilities covered	Facilities on inland navigable waters and all areas other than high seas, coastal and contiguous zone waters, coastal and Great Lakes ports and harbors	Facilities at which extremely hazardous substances (EHSs) are present in quantities equal to or greater than their threshold planning quantities; other facilities designated by the State	Hazardous waste facilities	Onshore and offshore facilities
Substances covered	Oil	EHSs	Hazardous wastes; hazardous waste constituents	Hazardous substances and oil
Scope of plans	State, local, and regional	Local	Facility	Federal, regional, and local
Purpose	Criteria for use by State and local governments to develop State, local, and regional oil removal contingency plans	Guidance for LEPC	Guidance for owners and operators of hazardous waste facilities to develop facility-specific contingency plans	Guidance for preparing Federal contingency plans
Contingency plan provisions	Authorities, responsibilities, and duties of State and local government agencies; notification procedures; post-notification response procedures; identification of full resource capability; damage recovery and enforcement procedures	Identification of covered facilities and other facilities nearby that might contribute or be subject to additional risk; transport routes for EHSs; release response procedures; list of community and facility emergency coordinators; notification procedures; methods for determining the occurrence of a release and the area or population likely to be affected; evacuation plans; emergency response and medical personnel training	Response procedures; arrangements agreed to by State and local parties (see Coordination section below); list of persons qualified to act as emergency coordinator; list of emergency equipment at the facility; facility evacuation plan	Regional contingency plans (RCPs): Include, as appropriate, information on all useful facilities and resources in the region, from government, commercial, academic, and other sources. Local contingency plans: Probable location of discharges or releases; availability and location of resources for response to single or multi-media incidents; waste disposal methods and kinds of facilities consistent with local and State plans developed under RCRA; local structure for response to discharges or releases (Draft proposed NCP revisions incorporate State and local planning requirements from SARA Title III and refer to local contingency plans as On-Scene Coordinator contingency plans)

EXHIBIT 2-3. SIDE-BY-SIDE COMPARISON OF PROVISIONS FOR CONTINGENCY PLANS (Continued)

	40 CFR Part 109 Criteria for State, Local, and Regional Oil Removal Contingency Plans	SARA section 303 Comprehensive Emergency Response Plans	40 CFR sections 264.50-264.56 Contingency Planning Provisions	40 CFR Part 300 National Contingency Plan Planning and Coordination Provisions
Coordination of contingency plan preparation	Criteria for developing plans chosen to minimize conflict between State and local government agencies and to avoid unnecessary duplication of effort; State and local government's contingency plans are to be developed in consultation with private interests; plans submitted upon request to the Council on Environmental Quality to facilitate coordination with NCP	Plan identifies community and facility emergency coordinators who implement plan and notify designated persons and the public; plan also includes training programs for local emergency response personnel; (NRT publishes guidance on preparing and implementing local emergency response plans under draft proposed NCP revisions)	Plan includes list of all persons qualified to act as facility emergency coordinator; arrangements agreed to by local police departments, fire departments, hospitals, contractors, and State and local emergency response teams to coordinate emergency services; a copy of the plan and all revisions must be maintained at the facility and submitted to the parties named above	National planning and coordination accomplished through the NRT and RRTs; NRT maintains national, regional, and local plans for response actions; NRT has direct planning and preparedness responsibilities and advises the RRTs; (NRT publishes guidance on preparing and implementing local emergency response plans under draft proposed NCP revisions); RRTs develop RCPs; OSCs develop OSC contingency plans in consultation with RRTs; (RCPs and OSC contingency plans, and SARA Title III local emergency response plans)
Review of contingency plans	No provisions	Local emergency response plan submitted to SERC for review; NRT and/or RRTs review local emergency response plan, at request of LEPC	Contingency plan submitted for review and approval to Regional Administrator with Part B of the permit application under 40 CFR Part 270	NRT reviews RCPs; RRTs review NCP and OSC contingency plans

2.6 Memoranda of Understanding

EPA has traditionally used the MOU between itself and another regulatory body to delineate the role of each in areas of overlapping responsibility. The Task Force recognizes that any amendments to the SPCC regulations may require further coordination and cooperation among a number of Federal agencies. The MOU in 40 CFR Part 112 between the Secretary of Transportation and the EPA Administrator is very limited in scope, addressing only the definitions of "[n]on-transportation-related onshore and offshore facilities" and "transportation-related onshore and offshore facilities."

Whereas EPA regulates non-transportation-related onshore and offshore facilities, DOT issues regulations concerning the safe handling and storage of oil and hazardous materials in transportation-related onshore and offshore facilities. Specifically, DOT's Research and Special Programs Administration, Office of Pipeline Safety, and Office of Hazardous Materials Transportation, and the U.S. Coast Guard (the responsibility of DOT during peacetime) regulate oil and hazardous materials transportation facilities. Because of these overlapping interests, a MOU between DOT and EPA defining, for example, the difference between bulk storage tanks and pipeline surge and makeup tanks (known as "breakout tanks," see 49 CFR 195.2) may be necessary to assign and coordinate the inspection and regulatory responsibilities of the two agencies.

The Department of the Interior's Minerals Management Service also has an interest in SPCC regulations and contact should be maintained to ensure that the MMS's regulations are compatible with those of EPA. MMS maintains a corps of approximately 70 inspectors who are charged, in part, with inspecting certain offshore mineral extraction facilities (primarily oil rigs at a distance of three miles or more offshore, except for the Gulf Coast of Florida and Texas, where Federal jurisdiction begins nine miles offshore). The DOI's Bureau of Land Management also inspects and maintains tankage on Federal lands. Coordination and cooperation between EPA and DOI may be enhanced by use of a MOU to ensure that inspection standards for oil tanks and other regulated facilities offshore are compatible.

The Occupational Safety and Health Act of 1970 is implemented through regulations issued by OSHA within DOL. OSHA maintains a large number of inspectors who are interested in dike design, safety features, and the integrity of oil and hazardous materials tanks, and other equipment for compliance with worker safety standards. EPA's goals of preventing and controlling spills from regulated facilities are completely compatible with those of OSHA. The Task Force recommends formal coordination and cooperation between the DOL and EPA. This cooperation may require the use of MOUs to ensure similar inspection standards and spill control guidelines as would an agreement on dike design and tank standards.

Other governmental departments or agencies not mentioned in this chapter might be involved in specific recommendations made by this Task Force. The Task Force will seek ways to simplify and strengthen the SPCC program regulations through appropriate use of MOUs.

2.7 RESEARCH AND DEVELOPMENT IN THE OIL PROGRAM

The research and development effort on the prevention of oil spills, and control of and countermeasures for oil spills, has not been maintained through the middle of this decade at the high level experienced earlier. As a result of this suspension in research, little new technology has become available for the prevention of oil spills or spill treatment.

The Ashland Oil facility spill highlighted the need for specific research. One area is development of a control technology of oil spills in fast moving, inland waters. Another area is improvement of cold weather spill control and recovery techniques. For these reasons, the Task Force recommends that a vigorous research program in these areas be re-established. The following list, though not comprehensive, identifies a few areas where research may be appropriate.

- Update the current Guideline manual for SPCC inspections.
- Identify all existing SPCC guidance materials and review such materials for updates by appropriate entities.
- Develop instruments capable of detecting leaks in oil lines and around above-ground and underground storage tanks. Current methodology relies on pressure drop and material balance and is not adequate for rapid response to leaks and spills.
- EPA's Office of Research and Development, working with the U.S. Coast Guard, developed a leak plugging device based on the in-place formation of rigid foam. Certain problems associated with this hand-held device require resolution.
- Develop fire-proof floatable booms for oil spill containment. Recent progress in this area has been made by the private sector, but more work needs to be conducted.
- Develop containment methods, response, and equipment techniques effective in rapidly flowing rivers.
- Update the Agency's "Field Manual for Cold Climate Oil Spills" after further study of the behavior of various grades of oil in water at colder temperatures.
- Develop technology for containing an oil slick in rivers that are diked and a means for preventing overflow of the oil at the dike.
- Develop contingency planning techniques for facilities along a river that depend upon river water for their operation (such as, municipal water supplies and power plants).
- Improve oil-dispersant technology to reduce impacts on the biota.

- Develop interpretive guidance on ranking and evaluating oil-dispersants, biological control agents, surface collecting agents, and miscellaneous oil spill control agents. At a minimum, evaluate these products for removal effectiveness, toxicity, and cost-effectiveness.
- Develop an experimental design and conduct the analysis to determine common patterns for SPCC failure at non-transportation onshore and offshore fixed facilities.
- Identify high risk spill areas in the United States with regard to adverse impacts on water supplies, large population centers, sensitive ecosystems, and other potentially impacted areas which may be considered as high risk potential.
- Review SPCC related issues on pipelines.
- Develop mathematical models of catastrophic failure modes.
- Develop mathematical models for optimum tank, dike, and berm design, and to optimize containment systems.
- Conduct well-designed, comprehensive statistical data studies as part of a new data system to identify and analyze trends that will determine the correlations between inspection strategies and spill events.
- Review the adequacy of existing industry standards to provide safe methods of tank construction and reconstruction. Recommend specific improvements regarding such safety methods.
- Develop methods for the inspection of existing tanks and for assessing the adequacy of safety against fractures or other mechanisms likely to cause abrupt and complete failures.
- Develop methods for correcting deficiencies in existing tanks and incorporate appropriate provisions in the regulations related to industry standards.
- Develop guidance on procedures for prohibition of usage during investigations, pending final determinations.

CHAPTER 3

NATIONAL INVENTORY OF FACILITIES SUBJECT TO SPCC REGULATIONS

3.1 INTRODUCTION

The SPCC program covers oil storage terminals, tank farms, bulk plants, oil refineries, and production facilities, as well as large numbers of bulk oil consumers such as apartment houses, office buildings, schools, hospitals, farms, and State and Federal facilities. The SPCC regulations apply to both aboveground and underground storage tanks, and to oil of any kind. Facilities and tanks subject to the SPCC requirements are found on public and private property, both on and offshore, in all 50 States, the District of Columbia, the U.S. territorial seas, Puerto Rico, the U.S. Virgin Islands, Guam, the Trust Territories of the Pacific Islands, and American Samoa. The precise number and characteristics of tanks at these facilities has never been accurately determined.

3.2 PURPOSE

The Task Force had three purposes in gathering information on facilities subject to SPCC requirement. First, the Task Force wanted to assess the total number of facilities, small as well as large, that might be affected economically by any proposed amendments to existing SPCC regulations. Second, the Task Force sought primarily to identify facilities and tanks that present a substantial threat of discharge to sensitive ecosystems or major drinking water supplies. Finally, the Task Force wanted to identify facilities in geographic areas where Federal, State, and local response equipment and personnel should be located so that contingency plans could be implemented rapidly in the event of a major or significant oil spill.

3.3 APPROACH

The efforts of the Task Force to compile available information are summarized briefly below. The most relevant existing information regarding the total number of facilities subject to SPCC regulations is contained in an earlier EPA Report. This report estimated that there are more than 650,000 SPCC facilities as of 1985. The Task Force gathered data from EPA Regional offices and States, and sought information from other Federal sources. In an effort to quickly obtain specific data from which national projections might be made, an informal data search involving four major oil-producing states (Alaska, California, Texas, and Louisiana) was conducted. In conjunction with three EPA Regions, an attempt was made to collect available information on the number of tanks with one million (or more) gallon capacities at private sector oil facilities and Federal facilities. In most cases, however, information about these facilities was either unavailable or did not exist. Information on previous spill incidents resulting from tank failures was also sought.

3.4 FINDINGS

Region I had maintained SPCC program data and contingency plan information, as well as files on comprehensive overflight photographs. Using this information, a detailed summary on facilities was formulated for each State in the Region. Most of the information in these files was compiled during the late 1970's; data regarding the number of tanks, tank contents, facility name and age, and estimated storage capacity was collected only for facilities with storage capacities greater than 1,000,000 gallons. Region III staff identified a database of tank permits in Pennsylvania that had approximately 200,000 entries, but the data did not distinguish between above-ground and underground tanks. Region V staff contacted several State agencies, but found very little useful information. Regions VII and VIII have little or no SPCC program information available and do not have comprehensive overflight photographs of SPCC-regulated facilities. In Regions IX and X, no databases were identified immediately, although database information sources were suggested. Exhibit 3.1 displays the extent of the information search by the Regions and delineates the identified sources. All the Regions are continuing to collect available information when data sources are identified.

The EPA OUST docket, which includes reports on methods to define tank populations and on regulatory revisions, was made available for inspection by the Task Force. Information from OUST showed that a survey of Federal agencies had been conducted, resulting in an extensive collection of underground storage tank data. Based on the notifications that have been received in the past two years, OUST estimates the national population of underground tanks to be approximately 1.7 million.

In addition to working with Headquarters and Regional Offices, the Task Force has contacted Federal agencies with responsibilities in related areas. The U.S. Coast Guard, which publishes statistics on oil spills throughout the nation, maintains data on the numbers and volumes of tank spills. The MMS of the DOI has extensive data on the number of oil platforms and inspection procedures in Federal offshore waters. Because MMS jurisdiction begins three miles or more from shore, there is no overlap with EPA's SPCC jurisdiction, which includes U.S. waters out to three miles. The OPS of the DOT conducted a review of its database and compiled a rupture history for its facilities. The U.S. Navy provided information to the Task Force regarding Navy facilities, including tank numbers, sizes, contents, and ages. Finally, the Task Force has had contact with the Department of Energy, which is conducting a petroleum resource inventory in conjunction with the National Petroleum Council. A copy of the 1985 edition of this survey report has been provided to the Task Force. An updated version, available in late 1988, will, like the 1985 edition, contain aggregate facility information, but not specific tank information such as number, capacity, and age.

In addition to the data from Federal and State sources, the Task Force will have access to reports from the API, which is reviewing the present SPCC regulations, tank standards, and SPCC program from the perspective of the regulated community. API is currently drafting a report on tank ruptures that is scheduled to be completed in June, 1988. API also plans to conduct a small-scale survey of a representative group of API members that will collect some specific above-ground storage tank data, but this survey will not be completed until September, 1988. Other private sector sources of information were reviewed, such as the Oil Buyers Guide Petroleum Marketers Handbook, but such sources contained limited tank-specific data.

With respect to tank failures, no easily accessible data sources were found that could provide comprehensive information on past tank failures and causes. As mentioned earlier, some detailed information was obtained from OPS, and API is currently preparing a report on tank ruptures.

3.5 CONCLUSIONS

Extensive examination and review of existing Regional, State, and private sector information sources has revealed that recent comprehensive data on facilities subject to the SPCC regulations is not readily available. Available SPCC information is generally in the form of reports on release incidents and site inspections, and is of little assistance in quantifying the universe of SPCC-regulated facilities and tanks. These reports are generally archived and not tabulated, which makes retrieval difficult and labor intensive. Tank information from other sources was occasionally comprehensive and easily accessible, but was not categorized in a manner useful for obtaining the desired information. For example, Pennsylvania's computerized tank permitting system can print out data on over 200,000 permitted tanks, but can not distinguish between above-ground and underground tanks. Since the database was compiled in the late 1970's, the accuracy of the data is questionable.

A comprehensive national survey of tank age within the private sector could be conducted by using Standard Industrial Classification (SIC) Codes. The survey would indicate major facility types, as well as the names and addresses of the listed facilities.

The Task Force also believes that collection of historical tank rupture data is necessary in order to determine the causes of failure and to identify resulting patterns and frequencies. This information should not be limited to incidents involving discharges to navigable waters but should cover all rupture incidents, thereby enabling inspectors to focus attention on potential storage tank weaknesses and related concerns.

Finally, the Task Force estimated the number of SPCC facilities to be in excess of 650,000. Although this number is not known precisely, the available data lead to this estimate.

3.6 RECOMMENDATIONS

Additional data gathering on above-ground tanks is required in order to develop a sound estimate of the tank population subject to SPCC regulations. Without such an estimate, efforts to revise current regulations, target SPCC program resource needs, and focus limited resources on high-threat spill situations through contingency planning will be more difficult. The Task Force has developed the following recommendations for proceeding with the data-gathering effort:

- A national survey of oil storing facilities currently subject to SPCC regulations should be conducted, using a standardized questionnaire form that is machine readable. The following SIC codes, which cover the majority of industries known to store large quantities of petroleum and petroleum products, will be included in this survey:

  -- 1311 Crude Petroleum and Natural Gas,
  -- 1381 Drilling Oil and Gas Wells,
  -- 2911 Petroleum Refining,
  -- 2992 Lubricating Oils and Greases,
  -- 4911 Electric Services,
  -- 4961 Steam Supply,
  -- 5171 Petroleum Bulk Stations and Terminals, and
  -- 5172 Petroleum and Petroleum Products Wholesalers, Except Bulk Stations and Terminals.

  Industries that are nonprimary users of petroleum and petroleum products, such as agricultural, textile, paper, and metal industries, store significant quantities of heating fuels and gasolines. A sample survey of these types of facilities will be conducted to produce estimates regarding the number of above-ground storage tanks, tank contents, size, age, and methods of construction. Estimates regarding spill histories and proximities to major drinking water supplies and sensitive ecosystems will also be made.

  The same format will be used in the survey of Federal facilities. Although it is difficult to estimate the length of time presently required for completing the private sector survey, the Task Force estimates that a comprehensive survey of Federal facilities could be completed in a six-month period if properly staffed and funded.

- The SPCC regulations should be amended to require owners and operators of above-ground storage tanks to notify EPA if their facilities are subject to the regulations. Notification should be done using a standardized form (available from EPA) that would require above-ground storage tank data, such as: number, age, size, method of construction, content, spill history, and proximity to drinking water supplies or sensitive ecosystems. A provision for periodic follow-up notifications should be considered based upon any major facility changes that affect the original or most recent data.

- A detailed review and analysis of historical tank rupture information should be completed. The information gathered should encompass all such incidents including contained and other land-based spills, as well as those that reach navigable waters. The resulting information could be used to focus inspection activities on those facilities and tanks near major drinking water supplies and sensitive ecosystems.
- Although the current SPCC regulations do not require a census of the tank population, more accurate quantitative data is needed to properly assess the impact of proposed regulatory amendments. Such assessments should target the resources needed for SPCC compliance, inspections, and enforcement, and identify significant spill threat situations so that fail-safe equipment may be used and response equipment can be strategically and effectively situated for deployment in spill situations.

EXHIBIT 3-1. AVAILABLE DATA SOURCES FOR TANK INVENTORY, BY REGION

Region I

Source(s):

Review of 42 books of EPA aerial reconnaissance photographs, State EPA Office SPCC inspection information, and USCG and EPA Region I contingency plan information from the late 1970s.

Information Received:

Information available for Region I (much of which is estimated) includes: facility name and age, above-ground tank size, tank contents, and estimated storage capacity. Most of the available information is from the 1970s, and effort was concentrated on facilities that have a storage capacity in excess of 1,000,000 gallons. There was 1 catastrophic tank failure in this Region in the last 18 years.

Region II

Source(s):

Regional SPCC inspection information, New Jersey Department of Environmental Protection, and New York State Department of Environmental Conservation.

Information Received:

New York: There are approximately 35,000 regulated facilities, and an estimated 120,000 above-ground and underground petroleum storage tanks in excess of 1,100 gallons.

New Jersey: There are approximately 11,000 facilities with registered underground storage tanks, and EPA estimates a total of 90,000 above-ground and underground tanks.

Puerto Rico/ US Virgin Islands: EPA estimates that there are 1,000 regulated tanks.

Region III

Source(s):

Virginia: State EPA Office, State Fire Marshal and 21 county fire Offices, and numerous facility contacts in 17 counties.

W. Virginia: State EPA Office, State UST Office, and Industrial Data File.

Washington: State EPA Office, Fire Inspector's Office.

Delaware: State EPA Office, State Fire Marshal, four city fire marshals, and Directory of Commerce and Industry.

Maryland: State EPA Office, and Division of Natural Resources.

EXHIBIT 3-1. AVAILABLE DATA SOURCES FOR TANK INVENTORY, BY REGION (Continued)

Pennsylvania: State EPA Office, State Fire Marshal, and county tank permit records.

Information Received:

The 210,000 permit entries from Pennsylvania are not categorized as above-ground or underground storage tanks. These entries are not current. Maryland has an oil operations permit listing, which only has capacity information. Delaware has detailed tank information, but, again, there is no distinction between above-ground and underground tanks.

Region IV[1]

Source(s):

State EPA Offices, as well as Oil and Gas Boards of Kentucky, Alabama, and Mississippi.

Information Received:

N. Carolina: Facilities that store more than 500 bbl. of oil must register with the State. There are an estimated 75,000 above-ground fuel oil storage tanks.

Florida: Facilities which store more than 550 gal. of vehicle fuel must register with the State. There are an estimated 23,000 above-ground fuel oil storage tanks.

S. Carolina: No SPCC program. There are approximately 60,000 above-ground fuel oil storage tanks.

Kentucky: No SPCC program. There are approximately 100,000 above-ground storage tanks. (Oil field tanks are included in this estimate. The average capacity of oil field tanks is 5,000 gal.)

Mississippi: No SPCC program. There are approximately 65,000 above-ground storage tanks.

Alabama: No SPCC program. There are approximately 50,000 above-ground storage tanks.

Tennessee: No SPCC program. There are approximately 40,000 above-ground storage tanks.

Georgia: No SPCC program. No estimate of the number of tanks was available.

Region V

Source(s):

Minnesota: State EPA Office, State Fire Marshal, and State Air Pollution Control Office.

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[1] Information on tank size and capacity was not available.

EXHIBIT 3-1. AVAILABLE DATA SOURCES FOR TANK INVENTORY, BY REGION (Continued)

Illinois: State EPA Office, State Fire Marshal, State Emergency Services, Manufacturer's Association, Petroleum Council, Department of Revenue, Department of Agriculture, Department of Weights and Measures, and State Air Pollution Control Office.

Indiana: State EPA Office, State Fire Marshal, Department of Environmental Management, and State Air Pollution Control Office.

Michigan: Department of Natural Resources, State Fire Marshal, and State Air Pollution Control Office.

Ohio: State EPA Emergency Response Team, State Fire Marshal, Ohio Petroleum Marketer's Association, and State Air Pollution Control Office.

Wisconsin: Wisconsin Department of Natural Resources, State Fire Marshal, Department of Human Relations, Bureau of Petroleum Inspections, State Air Pollution Control Offices.

Information Received:

Minnesota estimates there are 53 facilities that store over 1,000,000 gallons of petroleum products in aboveground storage tanks. Wisconsin estimates there are 40 facilities with storage capacities in excess of 1,000,000 gallons, many of which are located near major waterways.

Region VI

Source(s):

Arkansas: State Oil and Gas Commission, Department of Pollution Control and Ecology.

Louisiana: State EPA Office, Department of Natural Resources, and Department of Environmental Quality.

New Mexico: State EPA Office, and Department of Water Pollution Control.

Oklahoma: State EPA Office, Corporation Commission (Oil and Gas Commission), and State Water Resources Board.

Texas: State EPA Office, Railroad Commission, State Water Commission, and State Air Control Board.

EXHIBIT 3-1. AVAILABLE DATA SOURCES FOR TANK INVENTORY, BY REGION (Continued)

Information Received:

Minimal information was received from the Oil Buyer's Association. Limited information was gathered from aerial photographs. The Texas Air Control Board has an above-ground tank permitting database with an estimated 10,000 entries, but contains only limited data such as facility name and tank contents.

Region VII

Source(s):

State EPA Offices, local fire services, EPA/USCG aerial reconnaissance photographs.

Information Received:

A letter requesting information was forwarded to several agencies. Most urban fire service organizations conduct flammable liquid inspections. The obtained data concerns flammable and combustible liquids, as well as flammable gases (as defined by DOT and NFPA), and is manually stored, which makes data retrieval difficult.

Missouri: There is a listing of permitted new wholesale and retail fuel facilities available that contains storage volumes. This system, though, does not differentiate between above-ground and underground tanks.

Kansas: Tank installations are inspected through the district offices of the Division of Geology. Records of these inspections are available, but stored manually.

Region VIII

Source(s):

State EPA Offices, and State Regional Response Team.

Information Received:

Information, specific to above-ground storage tanks, is not available.

Region IX

Source(s):

State EPA Offices.

Information Received:

Information that is available from the States is inspection and incident related. Also, this data is manually stored. Preliminary searches of other potential databases uncovered fragmented and localized data.

EXHIBIT 3-1. AVAILABLE DATA SOURCES FOR TANK INVENTORY, BY REGION (Continued)

Region X

Source(s):

State EPA Offices, and major oil storage facilities (ie. Chevron, DOD, Marathon, Unocal, etc.).

Information Received:

State data is from the late 1970s, enforcement oriented, and manually stored. There are an estimated 90 tanks in excess of 1,000,000 gallons at various oil storage facilities throughout Alaska. Also, there are 9 facilities with combined storage capacities in excess of 1,000,000 gallons. (There is 1 facility that has more than 100,000,000 gallons of storage capacity).

CHAPTER 4

INSPECTION PROGRAM AND PROCEDURES

4.1 SPCC INSPECTIONS

SPCC inspections are conducted by Regional EPA personnel and Technical Assistance Team (TAT) support contractors. The number of inspections has decreased dramatically since the inception of this program in 1973. For example, in 1976, 3,553 inspections were conducted; in 1987, 1,178 inspections were conducted. Resources for the oil program are decreasing significantly between Fiscal Year (FY) '87 and FY '89. In FY '87, the Regions had 61 Full-Time Equivalents (FTEs) and $1.6 million, while in FY '89, 34 FTEs and $1.2 million will be available to support the oil program.

The Task Force compared the SPCC inspection program to the inspections performed by similar Federal programs, as presented in Exhibit 4-1. The Task Force found that the DOI Minerals Management Service annually inspects 100 percent of the 1,600 MMS-regulated facilities, with an inspection force of 150 people.

The DOT Office of Pipeline Safety annually inspects 40 percent (approximately 150) OPS-regulated facilities with blow-out tanks, with approximately 360 inspection units and 15 inspectors who devote approximately one-third of their time to inspections. The goal of the OPS program is to inspect each regulated facility at least once every 2.5 years.

Five percent (approximately 3,200) National Pollution Discharge Elimination System (NPDES) inspections were conducted by EPA's Office of Water Enforcement and Permits by approximately 100 FTEs in FY '87. In addition, States inspected 42,800 permitted facilities with approximately 1,100-1,200 FTEs. The total number of NPDES inspections performed by EPA and authorized personnel was 46,000 in FY '87, which represents approximately 70 percent of all permitted facilities.

The EPA Office of Air and Radiation conducts approximately 45,000 inspections annually, with 3,000 Federal inspectors. Some of the 30,000 facilities regulated by this office are inspected more than once during the fiscal year.

The Task Force found that the Regions would conduct more SPCC inspections if the funds and resources were available. Regional personnel cite numerous experiences of one inspection causing adjacent facilities to attempt to come into compliance, even if the adjacent facilities are not inspected. Furthermore, when EPA personnel attended and participated in local and State government and industry oil spill prevention meetings, the increased public attention resulted in more facilities developing SPCC Plans. The Task Force believes it is likely that the decreased activity in the inspection program has resulted in an increased number of facilities not complying with the SPCC regulations, as well as in reduced reporting of spills. This hypothesis should be examined and tested during future years of the program.

Based on the information received from the Regions, the Task Force estimates that, on the average, 20 work hours are required to conduct each SPCC inspection. This type of inspection process would be more detailed than those conducted at present. The inspection process would include the following five phases: (1) targeting and identifying the facility; (2) desk-top background review; (3) securing and reviewing the SPCC Plan; (4) conducting the inspection; and (5) enforcement actions and follow-up inspections, where appropriate.

The Regions were surveyed by committee members to determine how facilities were targeted for inspections. It was found that a uniform nationwide targeting procedure does not exist. Many Regions conduct inspections based on State or U.S. Coast Guard referrals or after an oil spill has occurred at a specific facility. Only one Region attempts to identify facilities located near potable water supplies. Generally, facility inspections are done randomly, but some Regions have developed a list of potential facilities and conduct inspections when time and resources are available.

4.1.1 Recommendations to Improve the SPCC Inspection Program

The Task Force has determined that additional inspections should be conducted within the Regions; however, a commitment from the Agency is needed to provide sufficient resources to conduct an adequate number of inspections. It is estimated that more than 650,000 facilities are currently regulated under 40 CFR Part 112. The Task Force recommends that the number of inspections be increased to one percent (6,500). This level would restore the inspection program to a reasonable level found in the late 1970's.

At a cost of 20 work hours per inspection, 71 work years would be required to conduct 6,500 inspections. The Task Force agreed that this level of effort should be established as a minimum long-term goal for the SPCC program.

The methodology used to conduct the inspections should be consistent throughout the Regions. A consistent procedure should be implemented for all inspections. A nationally consistent scheduling of inspections strategy should be developed focusing on the following elements:

- o Targeted inspections - inspection resources could be prioritized based on proximity to potable water supplies or sensitive ecosystems, as well as spill potential. Inspections should also be conducted at facilities with past spill records, those facilities with known violations and deficiencies, and large facilities.
- o Random inspections - facilities would be identified by county surveys and "drive-bys." Currently, most facilities are identified and inspected randomly and this has proven to be extremely effective.

The Task Force recommends that at least one-half of all inspections should be targeted; the remaining should be random. This will also allow the Regions enough flexibility to select facilities based on Regional priorities, as well as the national inspection targeting strategy.

EXHIBIT 4-1. INSPECTIONS CONDUCTED IN SIMILAR PROGRAMS

Agency	Number of Inspectors	Number of Facilities	Number of Annual Inspections	Percent Completed Annually
DOI/Minerals Management Service	70	3,500	9,500*	100+
DOT/Office of Pipeline Safety	15	360 units**	150	40
EPA/Office of Water Enforcement and Permits - NPDES				
All Facilities	~1,200-1,300 FTEs	65,000	44,000	70
EPA	100 FTEs	65,000	3,200	5
State	~1,100-1.200 FTEs	65,000	42,800	65
Large Facilities Only		7,500	7,125	95
EPA/Office of Air and Radiation - Stationary Facilities	3,000	30,000	45,000*	100+
EPA/Office of Solid Waste - RCRA	453 FTEs	12,956	24,698*	100+

* Some facilities are inspected more than once during a fiscal year.

** An inspection unit which can contain many facilities but is under the control of one Administrative unit.

4.2 ANALYSIS OF TRENDS IN THE NUMBER OF INSPECTIONS VERSUS SPILLS

Since the inception of the SPCC program, the number of SPCC inspections has fluctuated; however, the general trend has been decreasing. Simultaneously, the number of reported oil spills from fixed facilities has increased. Although the ratio of number of spills to conducted inspections is not proportional, the data indicate that there exists a general correlation. Exhibit 4-2 depicts the correlation and trends of the number of reported spills versus the number of inspections. It is important to note that the early notification figures are somewhat "soft" because the system was not capable of compiling all sources of spill information. The new system was in full use during 1987. These numbers include spills reported to EPA, the NRC, and the U.S. Coast Guard, which are merged into the Emergency Response Notification System. This number better represents the actual number of spill events.

In 1987, the number of inspections decreased to 1,109, the lowest number since inception of the program. In 1987, the number of spills also significantly increased to 3,103 reported from fixed facilities.

The goal of the CWA is to reduce the number of spills of oil and hazardous materials into the navigable waters of the U.S. to zero. The SPCC program was created to assist in achieving that goal. Recently, the number of SPCC inspections per year has been decreasing; however, the trend associated with the number of spills indicates that spills have increased (see Exhibits 4-3 and 4-4). The Task Force believes that increasing the number of SPCC inspections will alter the trend to achieve lower numbers of spills.

EXHIBIT 4-2. TRENDS IN SPILLS AND INSPECTIONS FROM 1976 THROUGH 1987

YEAR	TOTAL NUMBER OF INSPECTIONS	OIL SPILLS FROM FIXED FACILITIES
1976	3,412	1,478 +
1977	3,311	1,496 +
1978	2,418	1,341 +
1979	1,878	1,167 +
1980	2,809	1,472 +
1981	2,107	1,005 +
1982	2,400	2,112 ++
1983	1,491	2,013 ++
1984	2,000	1,877 ++
1985	2,847	1,690 ++
1986	2,233	1,651 ++
1987	1,109	3,103 ++

+ Spill data from the Coast Guard Pollution Incident Reporting System. Data not available from 1984 to the present.

++ Spill data from the Emergency Response Notification System-Department of Transportation, Transportation Systems Center.

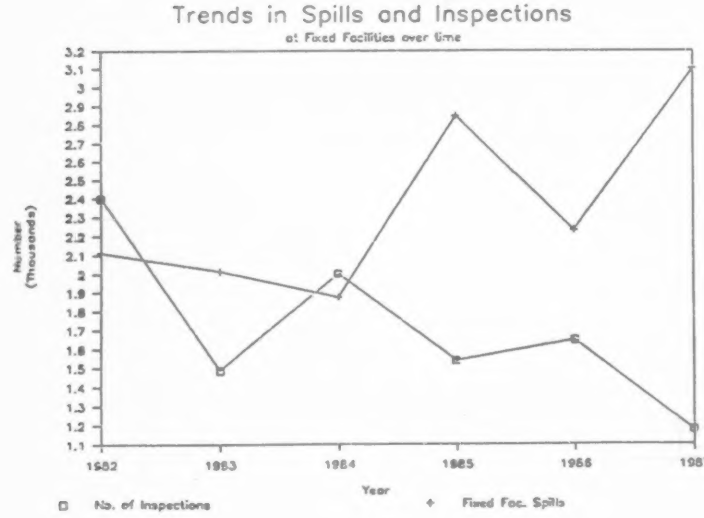
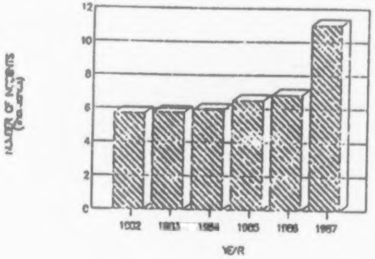
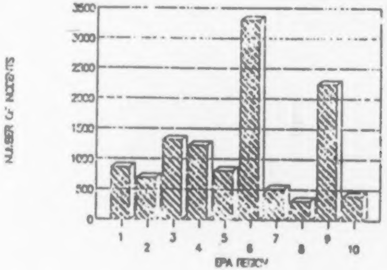
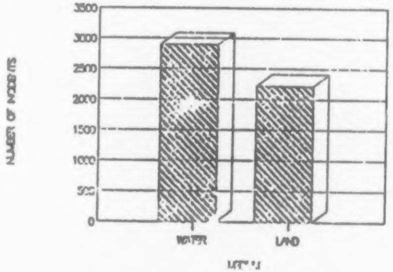


EXHIBIT 4-3. SPILLS REPORTED TO NRC AND EPA


TOTAL NUMBER OIL SPILLS
REPORTED TO THE NRC AND EPA


NUMBER OF SPILLS IN 1987
REPORTED TO THE NRC AND EPA


SPILLS AT FIXED FACILITIES
REPORTED TO THE NRC & EPA IN 1987

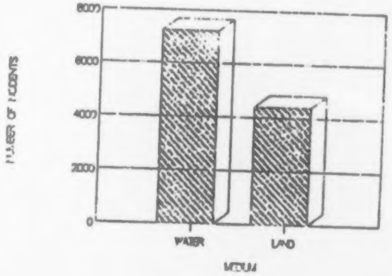
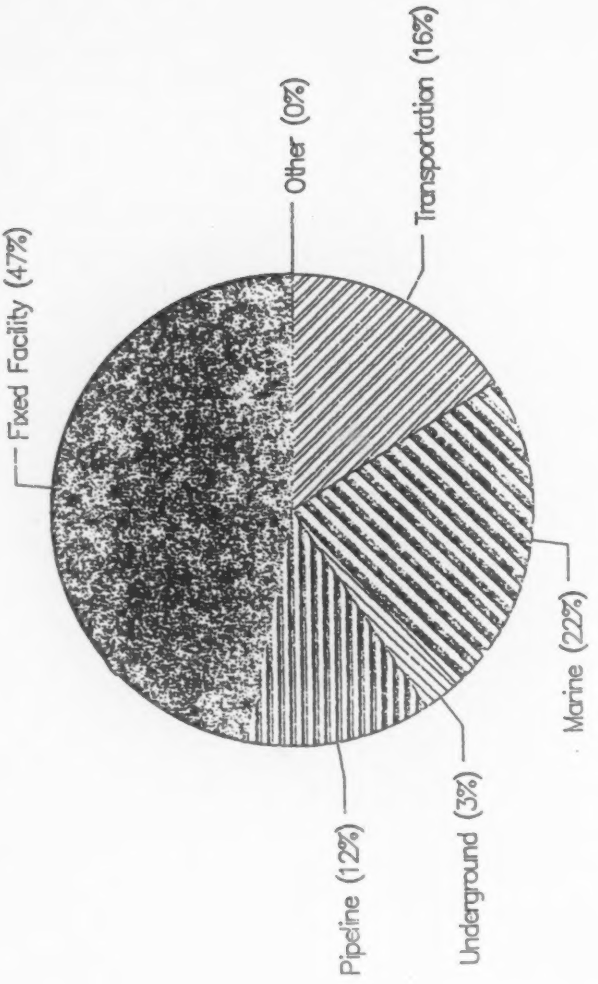

TOTAL SPILLS
REPORTED TO THE NRC & EPA IN 1987

EXHIBIT 4-4. 1987 SPILLS BY MODE REPORTED TO THE NRC AND EPA



4.3 TRAINING

Each Region has established a training program for SPCC inspectors. Five Regions have classroom-based programs. These programs usually consist of a 2-3 hour session during which students review the regulations and required paperwork. The curricula vary widely in depth and content. Nine Regions have developed apprenticeship training programs. In such programs, a student will accompany an experienced inspector during a SPCC inspection. While the majority of experienced inspectors are from TAT, some of them are EPA employees. The apprenticeship program is very effective because the inexperienced person learns first-hand how to tailor the inspection to the particular size and type of facility.

The Regions were also surveyed to determine whether guidance manuals for inspectors had been developed. Eight Regions reported that manuals had been developed, although two Regions consider such manuals "informal" and strictly for EPA Regional use. The contents of the manuals vary from Region to Region and are tailored to the types of facilities normally found in the specific Regions. In general, these manuals contain the SPCC regulations and the required forms. The manuals may also include form letters to be sent to other branches within EPA and to the facilities.

4.3.1 Recommendations

Because SPCC inspector training is not consistent nationwide, it is possible that the inspections may vary greatly from Region to Region. To ensure uniformity, the Task Force recommends that one SPCC inspection guidance manual be developed in close consultation with the Regions, and subsequently distributed to the Regions.

A standard training program should also be developed. The Task Force believes that the apprenticeship program is highly effective, and that the program should be encouraged by the Agency. The most comprehensive training would be a combination of the classroom and apprenticeship programs.

4.4 ENFORCEMENT

The survey requested information from the Regions with respect to their management of enforcement. It was found that little national consistency exists with respect to program responsibilities for issuing penalties. In seven Regions, the inspection reports showing deficiencies are processed by the Water Enforcement Branch. No penalties appear to have been issued in these Regions. The remaining three Regions assess penalties within the Regional removal program (Emergency Response and Inspection Branch). In these Regions, the number of penalties ranged from 2-13, depending upon the number of inspections; generally, 10 percent of the facilities inspected were penalized. These facts suggest that enforcement is more effective when the Regional removal program is responsible for SPCC enforcement procedures.

In two Regions, the SPCC coordinator sends letters of deficiencies to facilities that do not comply with 40 CFR Part 112, and a matrix is used to assess penalties. Two other Regions assess penalties based on judgment alone. One Region assesses penalties based on judgment, but uses formal guidance in the assessment.

In those Regions where follow-up inspections are conducted, facilities are randomly selected for re-inspection; due to insufficient resource availability, only two to five percent of all facilities that are initially out of compliance are inspected a second time.

4.4.1 Recommendations

Enforcement seems to be most effective when it remains within the program. The Regional offices need a methodology with which to assess penalties. This methodology should be developed by a central source to ensure consistency. The Task Force recommends that the Regional Administrators strongly consider transferring SPCC enforcement responsibilities into the removal program. However, if enforcement remains within the Water Enforcement Branch, a tracking system must be developed to maintain and record enforcement activities. A tracking system would also allow the inspectors to quickly retrieve the status of deficient inspection reports.

The Regions that currently handle enforcement within the removal program all indicated that they were somewhat over-extended, and if the number of cases increases, more resources will be needed to conduct more follow-up inspections. The Task Force makes the following recommendations with respect to enforcement:

- The Regional Administrators transfer SPCC enforcement responsibilities into the removal program.
- The Agency needs to make a stronger commitment to obtain the necessary enforcement resources.
- All completed SPCC inspections should be recorded in a computerized database that is consistent in format throughout the EPA Regions. The database should include data regarding letters of intent, letters of deficiencies, violations, and related data pertinent to all facilities.
- Enforcement of all Regional SPCC programs should be coordinated to provide improved tracking and accountability.
- Sufficient resources should be allocated for conducting follow-up field inspections to verify that corrective actions have been taken at facilities that have been cited as being in violation.

- To improve Regional consistency in the methodologies used for issuing penalties, the Task Force recommends that EPA develop a formal penalty policy.

INTERIM FINAL REPORT
MAY 13, 1988

CHAPTER 5

RESPONSE ACTIVITIES

This chapter contains the findings and initial recommendations of the committee on response activities. The following three topics are covered: the first Federal official on-scene; declaring a Federal cleanup; and Regional Response Team (RRT) activation. For the first two issues, the Task Force presents the law or regulation governing the activity and a brief summary of recommendations. For the third issue, RRT activation, a case study of the Ashland Oil spill is provided as an example of the topics under consideration.

5.1 FIRST FEDERAL OFFICIAL ON SCENE

5.1.1 Current Authority

Sections 300.33(b)(1), 300.6, and 300.24(a) of the NCP state:

> 300.33(b)(1) "The first Federal official to arrive at the scene of a discharge or release should coordinate activities under this Plan and is authorized to initiate, in consultation with the On-Scene Coordinator (OSC), any necessary actions normally carried out by the OSC until the arrival of the predesignated OSC. This official may initiate Federal Fund-financed actions only as authorized by the OSC or (if the OSC is unavailable) the authorized representative of the lead agency."
>
> 300.6 "First Federal official means the first Federal representative of a participating agency of the National Response Team to arrive at the scene of a discharge or a release. This official coordinates activities under this Plan and may initiate, in consultation with the OSC, any necessary actions until the arrival of the predesignated OSC. A State with primary jurisdiction over a site covered by a cooperative agreement will act in the stead of the First Federal official for any incident at the site."

> 300.24(a) "Each State governor is requested to assign an office or agency to represent the State on the appropriate RRT. Local governments are invited to participate in activities on the appropriate RRT as may be provided by State law or arranged by the State's representative. The State's representative may participate fully in all facets of activities of the appropriate RRT and is encouraged to designate the element of the State government that will direct State supervised response operations."

5.1.2 Recommendations

It is generally agreed that the system of establishing a "first Federal official on-scene" is one that has worked well in the past; however, hypothetical cases where the system could fail have been identified. The Task Force agreed that State participation could reduce the possibility of system failure.

The Task Force recommends that the National Response Team (NRT) examine the feasibility of renaming this official "the first government official on-scene" and modifying the definition to include the State representative of the RRT, providing that the State desires to participate and is willing to undertake an appropriate cooperative agreement. (Alternately, the NCP could be amended prior to the revision currently under consideration.) This participation would not allow activation of 311(k) money without formal approval of another Federal official with authority to activate 311(k) money.

5.2 DECLARING A FEDERAL CLEANUP

5.2.1 Current Authority

The Federal OSC derives authority from the CWA, section 311(c)(1), which states, "...the President is authorized to act to remove or arrange for the removal of such oil or substance at any time, unless he determines such removal will be done properly by the owner or operator of the vessel, onshore facility, or offshore facility from which the discharge occurs."

Section 300.52(c) of the NCP further states that:

> "the OSC, in consultation with legal authorities when appropriate, shall make a reasonable effort to have the discharger voluntarily and promptly perform removal actions. The OSC shall ensure adequate surveillance over whatever actions are initiated. If effective actions are not being taken to eliminate the threat, or if removal is not being properly done, the OSC shall, to the extent practicable under the circumstances, so advise the responsible party. If the responsible party does not take proper removal actions, or is unknown, or is otherwise unavailable, the OSC shall, pursuant to section 311(c)(1) of the CWA, determine whether authority for a Federal response exists and, if so, take appropriate response actions. Where practicable, continuing efforts should be made to encourage response by responsible parties."

The Task Force found that Ashland Oil Company took appropriate actions in regards to the spill. The Task Force also noted a number of advantages to encouraging the responsible party to clean up a spill:

(1) Potential dischargers will be encouraged to maintain a cleanup capability;

(2) An inducement exists for the responsible party and the response agencies (Federal, State, and local) to work cooperatively;

(3) Responsible parties are not restricted in the manner of expending funds for response to spills; government funds, however, may be restricted;

(4) Responsible parties should be bound to eliminate further spills;

(5) The discharger should pay for cleanup expenses, rather than the government (unless the discharger fails to comply); and

(6) Federal funds are often not recoverable.

It is further noted that in order for the system embodied in section 311(c)(1) to be effective, it is essential that the intent and provisions be interpreted uniformly throughout all levels of government and industry, and that the system be applied consistently by OSCs.

5.2.2 Recommendations

In future revisions of the NCP, the NRT should:

a. Ensure, through the RRTs and other appropriate vehicles, that the broad spectrum of the response community and related industry are aware of the rationale and advantages of section 311(c)(1), and

b. Examine the appropriate guidelines and directives to ensure, to the maximum extent practical, uniform application.

5.3 REGIONAL RESPONSE TEAM ACTIVATION - A CASE STUDY OF THE ASHLAND OIL SPILL

This section presents the Task Force's evaluation of the activities of the RRT in connection with the release of oil from the Ashland Oil facility. The Task Force is considering general recommendations on the role of the RRT based on a review of the Ashland Oil spill and other spill events.

Section 300.32(b) of the NCP states "the incident-specific team jurisdiction will relate to the operational requirements of discharge or release response. Appropriate levels of activation, including participation by State and local governments, shall be determined by the designated RRT chairman for the incident." In the case of the Ashland Oil spill, the RRT convened by telephone, citing the advantages of home office location in expediting agreed-upon actions. The Team also felt that the OSC should not be burdened with additional logistical and administrative requirements, nor did the Team wish to confuse the issue of identifying the Federal official in charge.

Although these considerations are valid, the problems envisioned by the RRT may have been outweighed by potential benefits of convening near the site of the spill. Convening in Pittsburgh would have had several advantages:

(1) The presence of the RRT during the few days following the spill would have mitigated many citizen concerns;

(2) Liaison with the affected State governments would have been improved;

(3) The OSC would have been partially relieved of political involvement; and

(4) RRT members would have benefited from the experience of first-hand observations.

Heavy weight was placed on these observations by the first Federal official on-scene and by the State representative to the RRT, who are both members of the Task Force committee providing these recommendations. Due to these observations, the Task Force recommends that the NRT examine the role of the RRT at a major discharge.

CHAPTER 6

STATE AND LOCAL IMPLEMENTATION ISSUES

Although the SPCC program is presently the responsibility of the Federal government, the Task Force considered the issue of cooperation and delegation of all or parts of the SPCC program to the States or municipalities. The issues associated with such a decision are discussed in this section.

Presently, several States have programs similar to the Federal SPCC program (see Section 2.4). While few programs have identical components, many contain provisions such as those in 40 CFR Parts 109, 110, 112, 113, and 114. As with the Federal program, the State programs contain provisions for inspections of facilities. Although the inspections are conducted to monitor compliance with applicable State requirements, some States have entered into informal agreements with EPA Regional personnel to share information regarding facilities with probable SPCC violations.

Local officials, such as fire marshals, frequently include the inspection of above-ground tanks in the enforcement of local code programs. Such local safety inspections significantly complement the SPCC program; for this reason, the training of local officials through the SPCC program should be considered.

The Task Force also examined the efficiency of emergency response. For example, response to a single large inter-state spill affecting water supplies, businesses, and ecosystems may be hindered by conflicts among State interpretations of response plan implementation. The existing national program provides Federal authorities with the ability to coordinate response efforts in all areas of concern. On the other hand, many spills are confined to the waters of one State. In these cases, a State or local response may be more rapid, efficient, and cost-effective than a Federal response.

The individual level of environmental protection afforded by State programs is of critical importance. The relationship of a State to its regulated community will determine the stringency of regulations implementation efforts in any cooperative efforts with EPA. The Task Force has examined and will continue to review other EPA programs that have been delegated to, or have coopera-tive agreements with, State and local governments.

A further level of cooperation as a method for increasing the number of SPCC inspections conducted could be through the training of local fire marshals to conduct SPCC inspections. In many cases, a SPCC inspection may only require a few extra steps in the marshal's existing routine.

In general, however, if States promulgate separate regulations, State agreements to cooperate in targeting inspections should be pursued. If inspections are conducted by States, the inspectors must be able to impose penalties for non-compliance and inspectors should have training similar to that provided to EPA inspectors.

The probability of continued Federal resource constraints necessitates the recognition that cost is a factor in cooperative agreements that must also be examined. Even if Agency funding were restored to previous levels, the increased numbers of facilities indicate the advisability of conducting cooperative inspection programs.

Before proceeding further with implementation agreements, findings of the Task Force in the following areas should be examined:

- coordination on intra-State spill response;
- stringency of State programs;
- implementation of State inspections; and
- funding of State programs.

It is recommended that EPA continue analyses of these areas regarding State and local implementation issues.

CHAPTER 7

REVIEW OF PROPOSED LEGISLATION

In this chapter, proposed legislation on above-ground tanks is reviewed briefly. Two bills, the Heinz-Specter Bill (S.2020), and the Luken-Walgren Bill (H.R.4098), were proposed as a direct response to the release of approximately one million gallons of diesel fuel from the Ashland Oil facility on January 2, 1988. The Heinz-Specter Bill establishes a program to regulate above-ground storage tanks having the capacity to store at least one million gallons of petroleum. The Luken-Walgren Bill, also called the Tank Spill Prevention Act of 1988, would amend Subtitle I of RCRA, which regulates underground storage tanks containing certain hazardous substances and petroleum, to add a new part on Above-Ground Storage Tanks.

Two other bills, the Durenberger Bill (S.888) and the Daschle Bill (S.899), have provisions similar to S.2020 and H.R.4098, and both propose amending RCRA to include regulation of above-ground petroleum storage tanks. The Durenberger Bill (S.888), also called the Pipeline Safety Act of 1987, would amend the Hazardous Liquid Pipeline Safety Act to require pipeline facilities to be subject to corrective action authorities, Subtitle I of RCRA to include above-ground storage tanks, and SARA Title III to require pipeline facilities to be subject to emergency planning, notification, and reporting requirements. The Daschle Bill (S.899) would add Subtitle J to RCRA to address above-ground storage tanks.

The Task Force focused the review of proposed legislation on options associated with strengthening the existing SPCC program. The Task Force believes that new legislation is unnecessary to improve regulation of above-ground petroleum tanks. The Agency has broad authority under section 311(j) of the Clean Water Act to promulgate regulations establishing requirements for prevention of discharges from facilities to navigable waters of the United States. The existing SPCC program includes guidelines for the construction of facilities, requires the preparation of spill prevention plans, and provides for the inspection of tanks. Although regulatory and implementation steps discussed elsewhere in this report can be used to make the existing program more effective, the framework for an effective spill prevention program already exists and has been very effective, overall.

7.1 RECOMMENDATIONS

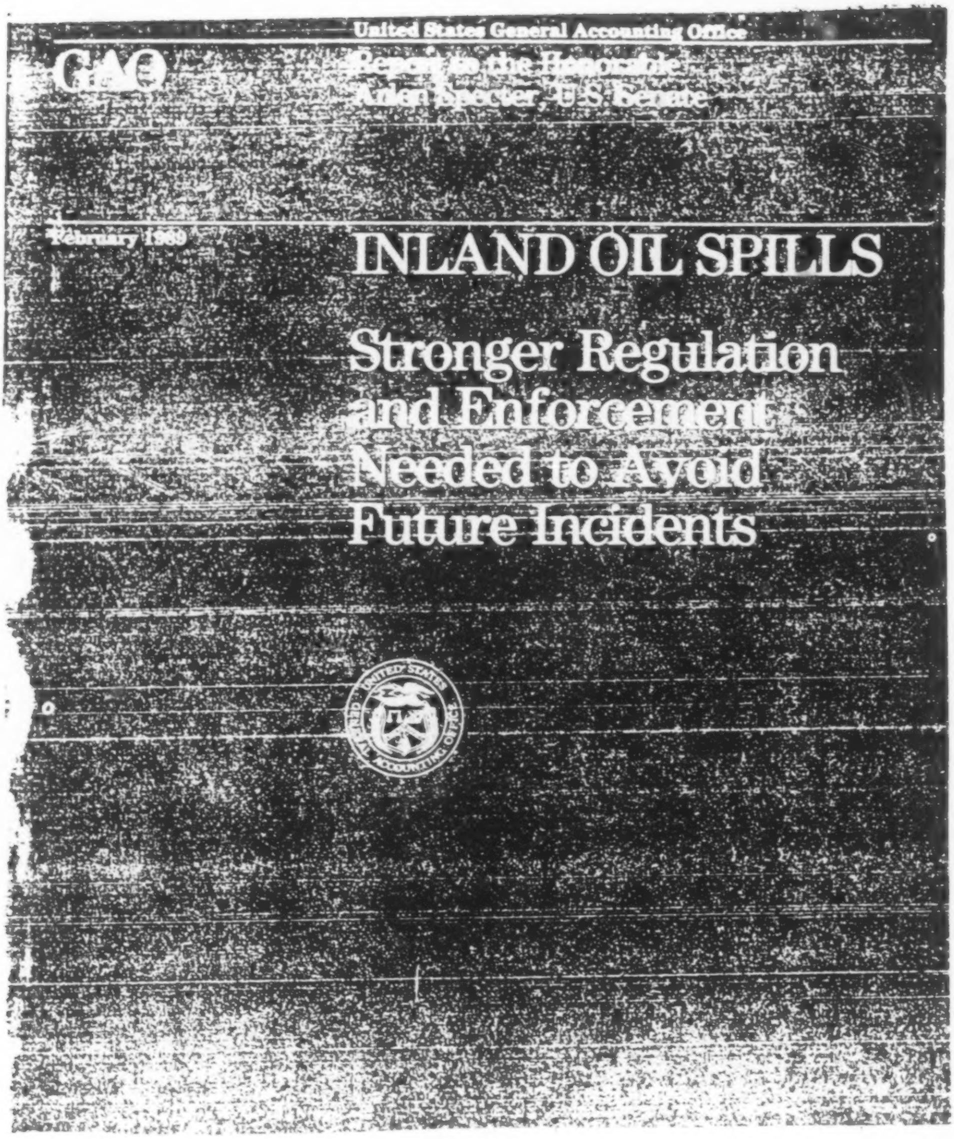
The Task Force believes that new legislation is unnecessary to improve regulation of above-ground petroleum storage tanks. The pending House and Senate bills have certain elements in common with Task Force recommendations found elsewhere in this report. For example, the bills parallel Task Force recommendations in the following areas:

- More stringent requirements, such as those in S.2020, should be considered for large tanks, old tanks, or those that have been reassembled or relocated.
- Some form of notification of the existence of tanks should be required, as provided in S.2020, S.899, and S.888.
- Provisions in H.R.4098 on rapid burst containment, professional engineer certification, and plan amendments should be considered for incorporation into 40 CFR Part 112.

The Task Force believes that EPA has the authority to implement the Task Force recommendations without new legislation.

GLOSSARY OF ACRONYMS

ANSI	American National Standards Institute
API	American Petroleum Institute
ASME	American Society of Mechanical Engineers
BLM	Bureau of Land Management
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
DOI	Department of the Interior
DOL	Department of Labor
DOT	Department of Transportation
EPA	Environmental Protection Agency
ERD	Emergency Response Division
ERNS	Emergency Response Notification System
ERT	Environmental Response Team
FTE	Full-Time Equivalent
FY	Fiscal Year
HLPSA	Hazardous Liquid Pipeline Safety Act
LANTAREA	Atlantic Area
LEPC	Local Emergency Planning Committee
LUST	Leaking Underground Storage Tank
MMS	Minerals Management Service
MOU	Memorandum of Understanding
MSO	Marine Safety Office
NACE	National Association of Corrosion Engineers
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NFPA	National Fire Protection Association
NPDES	National Pollution Discharge Elimination System
NRC	National Response Center
NRT	National Response Team
NY DEC	New York Department of Environmental Conservation
OERR	Office of Emergency and Remedial Response
OHMT	Office of Hazardous Materials Transportation
OMB	Office of Management and Budget
OPS	Office of Pipeline Safety
ORSANCO	Ohio River Valley Water Sanitation Commission
OSC	On-Scene Coordinator
OSHA	Occupational Safety and Health Administration
OUST	Office of Underground Storage Tanks
PA DER	Pennsylvania Department of Environmental Resources
PACAREA	Pacific Area
PE	Professional Engineer
PS	Preparedness Staff
RA	Regional Administrator
RCP	Regional Contingency Plan
RCRA	Resource Conservation and Recovery Act
RPE	Registered Professional Engineer
RRT	Regional Response Team
SARA	Superfund Amendments and Reauthorization Act
SERC	State Emergency Response Committee
SIC	Standard Industrial Classification
SPCC	Spill Prevention, Control, and Countermeasure
TAT	Technical Assistance Team
UL	Underwriters Laboratories, Inc.
USCG	United States Coast Guard
UST	Underground Storage Tank



United States General Accounting Office

GAO

Report to the Honorable
Arlen Specter, U.S. Senate

February 1989

INLAND OIL SPILLS

Stronger Regulation and Enforcement Needed to Avoid Future Incidents

GAO
United States
General Accounting Office
Washington, D.C. 20548

Resources, Community, and
Economic Development Division

B-232923

February 22, 1989

The Honorable Arlen Specter
United States Senate

Dear Senator Specter:

As you requested, this report assesses federal regulation of above ground oil storage tanks and certain elements of the federal oil spill cleanup program.

Unless you publicly release its contents earlier, we will make this report available to other interested parties 30 days after the date of this letter. At that time, copies of the report will be sent to appropriate congressional committees; the Administrator, Environmental Protection Agency; the Director, Office of Management and Budget; the Commandant, U. S. Coast Guard; and the oil companies referred to in the report. We will also make copies available to others upon request.

This work was performed under the direction of Hugh J. Wessinger, Director, Environmental Protection Issues. Other major contributors are listed in appendix I.

Sincerely yours,

J. Dexter Peach
Assistant Comptroller General

Executive Summary

Purpose

In January 1988, about 1 million gallons of diesel fuel spilled into the Monongahela River when an above ground oil storage tank collapsed at the Ashland Oil Co. facility near Pittsburgh. In April 1988, 400,000 gallons of crude oil leaked into a waterway near the San Francisco Bay from a storm water drainage system at a Shell Oil Company above ground tank. The spills contaminated drinking water, damaged the environment and private property, killed wildlife, and disrupted businesses. Senator Arlen Specter requested that GAO, in view of these spills, assess the adequacy of federal regulation of above ground oil storage tanks and the federal inland oil spill removal program.

Background

The Clean Water Act prohibits the discharge of oil into navigable waters and requires the Environmental Protection Agency (EPA) to regulate the oil industry to prevent oil spills and conduct research on the cleanup of spills. EPA's Oil Pollution Prevention regulations issued pursuant to the act require an estimated 650,000 on-shore oil storage facilities to prepare spill prevention plans and set out guidelines for plan contents. These guidelines recommend that tanks be constructed of appropriate materials and be tested periodically for integrity, and that tank operators take precautions to contain spilled oil. In addition, various industry groups have established tank construction and testing standards and state and local governments regulate and inspect tanks.

The act also required EPA to develop the National Contingency Plan which established oil spill response procedures for federal agencies. The plan makes EPA and the Coast Guard chiefly responsible for performing federal cleanups when the party responsible for the spill cannot or will not do the cleanup and for monitoring private party cleanups.

Results in Brief

EPA's regulations do not contain mandatory, specific design and operating practices to avoid spills like the Ashland and Shell spills. Although the regulations recommend safety practices, they do not require that (1) tanks be constructed and tested to meet industry or other specified standards, (2) oil storage facilities plan how to react to an oil spill that overflows facility boundaries, and (3) tank storm water drainage systems be controlled to prevent oil from escaping through them. Imposing and enforcing specific regulations in these areas would reduce the chances of future damaging spills.

EPA also does not have information regarding the number, age, and location of oil storage facilities and the construction and operation of tanks.

Because of inadequate data, EPA's inspection program does not ensure that those posing the greatest threat to the environment are inspected first. Further, EPA has not given inspectors sufficient training and guidance. Inspections were not thorough and well documented in the four EPA regions GAO visited. Finally, most EPA regions have not fined facilities that violated EPA regulations.

Only about one-fifth of the oil spilled into the Monongahela River from the Ashland facility was recovered with available equipment and methods. EPA needs to see if inland oil spill recovery technology can be improved. In addition, EPA and the Coast Guard do not recover costs of monitoring a spiller's cleanup although these costs can be substantial.

Principal Findings

Pollution Regulations

EPA's regulations do not require that operators of oil storage facilities construct and test tanks using industry standards. The Ashland tank was not constructed of materials meeting current industry standards and was not tested for integrity as required by these standards. The tank ripped apart when it was first filled to capacity. Subsequent metallurgical analysis showed that it was not tough enough for the cold temperatures and stress to which it was subjected.

Also, because the regulations do not require that facility owners and operators plan a response to the discharge of oil onto adjacent property, they may be unprepared to deal with this contingency. Before workers realized it, oil from the collapsed Ashland tank reached the Monongahela River through a storm drain outside the Ashland facility.

Equipment and operational deficiencies caused the Shell tank to discharge oil from a storm water drainage system. EPA's regulations do not mandate specific design and operating requirements for this type of system.

Enforcing the Regulations

EPA has not established management controls for its inspection program to ensure that the right facilities are inspected, inspections are well performed, and violations are deterred by appropriate sanctions. A need for better enforcement is indicated by the large number of oil spills occurring annually—from 2,000 to 3,000 each year since 1982—and by widespread violations of the regulations in the 4 EPA regions GAO visited. In these regions, 41 to 94 percent of inspections found noncompliance with the regulations.

EPA needs more information to decide which tanks to regulate most strictly and inspect most often. For example, because of the threat they may pose, EPA should identify tanks constructed of substandard materials which are located near drinking water. According to EPA officials, because of limited funds, EPA often inspects oil facilities near sites being inspected under other EPA programs.

Inspections were sometimes superficial and poorly documented. In an effort to stretch resources, one region did "windshield" inspections. That is, inspectors observed facilities from the roadway without any examination on-site. GAO also found inspection reports that did not indicate what inspectors checked or what specific violations they found.

The act authorizes fines of up to $5,000 per violation of the oil pollution prevention regulations. Despite numerous oil spills and other violations, 7 of the 10 EPA regions have not levied fines.

Oil Spill Response Capabilities

Ashland's cleanup operations only recovered about one-fifth of the oil it spilled into the Monongahela River. EPA and Coast Guard officials believe that the spill response was about as effective as was possible, given weather and river conditions and the technology available. However, some officials told GAO that currently available equipment is not well suited for spills on fast flowing rivers. EPA's spill response research program was eliminated in 1987 because of budget pressure.

Recovering Monitoring Costs

The act gives federal agencies the right to recover from the responsible party the costs of cleaning up an oil spill. However, the act does not clearly indicate that agencies can recoup their costs of monitoring a cleanup conducted by a private party. These costs can be large and disrupt normal agency operations. For example, EPA spent about $370,000 monitoring Ashland's cleanup in the first month and a half following the spill.

Proposal to Strengthen the Program

The EPA units at headquarters and in the regional offices which administer the oil pollution prevention program are also responsible for the Superfund program, a high priority effort to clean up the nation's worst abandoned hazardous waste sites. The emphasis given to the Superfund program, officials said, had diverted resources and attention away from the oil program, with the result that more detailed regulations and better management controls had not been developed. However, following the Ashland spill, EPA convened a multi-agency task force to review its oil program. Like GAO, the task force concluded that EPA's regulations and inspection program needed strengthening. The recommendations made by GAO and the task force are, to a large extent, similar.

Recommendation to the Congress

The Congress should amend the Clean Water Act to explicitly authorize the federal government to recover the costs of monitoring oil spill cleanups performed by private responsible parties.

Recommendations to the Agency

To reduce the likelihood of future damaging oil spills, GAO recommends that the Administrator, EPA

- amend the Oil Pollution Prevention regulations to require that (1) above ground oil storage tanks be built and tested in accordance with industry or other specified standards, (2) facilities plan how to react to a spill that overflows facility boundaries, and (3) storm water drainage systems be designed with controls to prevent oil from escaping through them;
- inventory above ground oil storage facilities and implement policies for (1) selecting facilities to inspect after coordinating with state and local authorities, (2) conducting and reporting inspections, and (3) fining violators; and
- reassess the need for research and development to improve inland oil spill responses, taking into account anticipated benefits, costs, and other program priorities.

Agency Comments

GAO discussed the report's contents with EPA and Coast Guard officials, and incorporated their comments where appropriate. However, as directed, GAO did not obtain agency comments on a draft of this report.